**WEST**

# Freeform Search

**Database:** US Patents Full-Text Database; US Pre-Grant Publication Full-Text Database; JPO Abstracts Database; EPO Abstracts Database; Derwent World Patents Index; IBM Technical Disclosure Bulletins

**Term:** l1 not (l10 or l9)

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**Generate:** ○ **Hit List** ◉ **Hit Count** ○ **Side by Side** ○ **Image**

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## Search History

**DATE: Tuesday, May 07, 2002** Printable Copy Create Case

| Set Name side by side | Query | Hit Count | Set Name result set |
|---|---|---|---|
| *DB=USPT,PGPB,JPAB,EPAB,DWPI,TDBD; PLUR=YES; OP=ADJ* | | | |
| L11 | l1 not (l10 or l9) | 41 | L11 |
| L10 | l6 same l1 | 36 | L10 |
| L9 | l8 same l1 | 20 | L9 |
| L8 | patient or human or mammal | 706633 | L8 |
| L7 | l1 and l6 | 72 | L7 |
| L6 | cell or administ$6 or consum$5 | 1780228 | L6 |
| L5 | l1 and l4 | 7 | L5 |
| L4 | l2 or l3 | 42 | L4 |
| L3 | ceramide synthase | 42 | L3 |
| L2 | sphingosine-n-acyltransferase | 3 | L2 |
| L1 | fumonisin | 80 | L1 |

END OF SEARCH HISTORY

```
=> d his

     (FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002)

     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002
L1          3475 S FUMONISIN?
L2           428 S SPHINGOLIPID (P) L1
L3            99 S L1 AND 1960-1991/PY
L4            55 DUP REM L3 (44 DUPLICATES REMOVED)
L5            37 S FUMONISIN B1 AND L4
L6            37 S (FUMONISIN B1) AND L4
L7      12467349 S ADMIN? OR TOPICAL? OR ORAL? OR PATIENT? OR CONSUM? OR
INJECT?
L8            18 S L7 (P) L4
L9            18 DUP REM L8 (0 DUPLICATES REMOVED)
L10           37 DUP REM L6 (0 DUPLICATES REMOVED)

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L5: Entry 1 of 7 File: USPT Nov 21, 2000

DOCUMENT-IDENTIFIER: US 6150415 A
TITLE: Epoxide hydrolase complexes and methods therewith

Detailed Description Paragraph Right (41):
Additionally, inhibiting the soluble epoxide hydrolase of plants can interfere with formation of plant cutin and thus can accelerate penetration of herbicides and other plant growth regulators. When using epoxide hydrolase inhibitors to accelerate or enhance herbicide action or to reduce herbicide resistance, we contemplate application along with an herbicide. Formulations with the epoxide hydrolase inhibitor and herbicides can be prepared for foliage or root uptake. Further, mycotoxins produced by fungi can be used to increase pathogenesis by destroying cells and to protect the fungal food source. These materials can be highly toxic to humans, domestic animals, and crop plants. For example, Alternaria alternata f. sp. lycopersici is a fungal pathogen that causes the Alternaria stem canker disease of tomato. During disease development and in liquid culture, the pathogen secretes host-specific toxins (AAL toxins) which, in purified form, elicit cell death patterns characteristic of the stem canker. The ability of the pathogen to infect leaves, stems, and green fruit of tomato is limited to genotypes that are homozygous for the recessive allele (asc/asc) of the Asc gene. The Asc gene also regulates toxin sensitivity; thus the toxins function as chemical determinants of the stem canker disease. Moreover, AAL toxins, which are members of the same class of sphinganine analog or mycotoxins as fumonisins, inhibit ceramide synthase in rat hepatocytes and induce apoptosis in monkey kidney cells. Unlike the case with fumonisins, the effects of chronic exposure of AAL toxins to animal health are still unresolved. The first of the AAL toxins (TA) was characterized in 1981 and more recently new isomeric toxins were purified and characterized. The presence of one pair of vicinal diols free or esterified, in the structure of all the AAL toxins suggests the possible involvement of an epoxide hydrolase (EH) in their synthesis. This hypothetical mechanism is supported by the fact that one of the oxygen atoms of the diol, came from direct incorporation of atmospheric oxygen and the other came from water.

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5518879
5232837

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L5: Entry 4 of 7 File: USPT Nov 3, 1998

DOCUMENT-IDENTIFIER: US 5830916 A
TITLE: Inhibitor of ceramidase

Drawing Description Paragraph Right (7):
FIG. 7. Effects of fumonisin B1 on growth suppression by D-e-MAPP. HL-60 cells were treated with either vehicle or 3 .mu.M D-MAPP in the presence of the indicated concentrations of fumonisin B1. Cell growth was determined at 48 h.

Drawing Description Paragraph Right (9):
FIG. 9. Scheme of ceramide metabolism and known inhibitors. Ceramide can be interconverted to sphingomyelin, cerebroside, or sphingosine through the action of at least 6 different enzymatic activities: 1) sphingomyelin synthase; 2) sphingomyelinase; 3) cerebroside synthase; 4) cerebrosidase; 5) ceramidase; 6) ceramide synthase.

Detailed Description Paragraph Right (23):
In addition to ceramidase, inhibition of cerebroside synthase and sphingomyelin synthase or stimulation of sphingomyelinase or cerebrosidase could result in elevations in endogenous ceramide levels. Therefore, the effects of D- and L-e-MAPP were examined on these enzyme activities in vitro and in cells. Neither D- nor L-e-MAPP caused inhibiton of cerebroside synthase activity (Table I). As a control, PMMP, a previously established inhibitor of cerebroside synthase, induced significant inhibition of this enzymatic activity (Table I). Also, D- and L-e-MAPP did not activate or modulate the activity of .beta.-glucosidase. In addition, neither D- nor L-e-MAPP modulated the endogenous levels of sphingomyelin arguing against an effect of either of these molecules on sphingomyelinase or sphingomyelin synthase. In vitro, neither D- nor L-e-MAPP modulated the activity of neutral or acidic sphingomyelinases. Finally, fumonisin B1, an inhibitor of ceramide synthase (45), did not inhibit the effects of D-e-MAPP on growth (FIG. 7).

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L5: Entry 3 of 7 File: USPT Dec 22, 1998

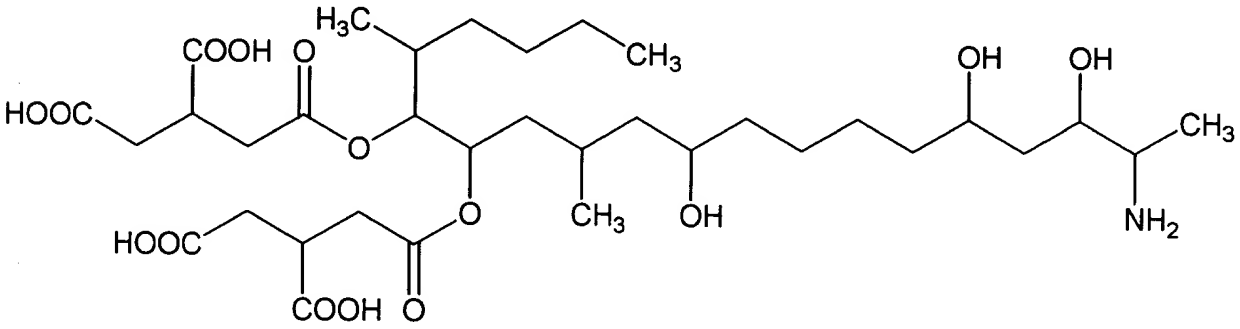
DOCUMENT-IDENTIFIER: US 5851782 A
TITLE: Inhibitors of ceramidase

Drawing Description Paragraph Right (7):
FIG. 7. Effects of fumonisin B1 on growth suppression by D-e-MAPP. HL-60 cells were treated with either vehicle or 3 .mu.M D-MAPP in the presence of the indicated concentrations of fumonisin B1. Cell growth was determined at 48 h.

Drawing Description Paragraph Right (9):
FIG. 9. Scheme of ceramide metabolism and known inhibitors. Ceramide can be interconverted to sphingomyelin, cerebroside, or sphingosine through the action of at least 6 different enzymatic activities: 1) sphingomyelin synthase; 2) sphingomyelinase; 3) cerebroside synthase; 4) cerebrosidase; 5) ceramidase; 6) ceramide synthase.

Detailed Description Paragraph Right (34):
In addition to ceramidase, inhibition of cerebroside synthase and sphingomyelin synthase or stimulation of sphingomyelinase or cerebrosidase could result in elevations in endogenous ceramide levels. Therefore, the effects of D- and L-e-MAPP were examined on these enzyme activities in vitro and in cells. Neither D- nor L-e-MAPP caused inhibiton of cerebroside synthase activity (Table I). As a control, PMMP, a previously established inhibitor of cerebroside synthase, induced significant inhibition of this enzymatic activity (Table I). Also, D- and L-e-MAPP did not activate or modulate the activity of .beta.-glucosidase. In addition, neither D- nor L-e-MAPP modulated the endogenous levels of sphingomyelin arguing against an effect of either of these molecules on sphingomyelinase or sphingomyelin synthase. In vitro, neither D- nor L-e-MAPP modulated the activity of neutral or acidic sphingomyelinases. Finally, fumonisin B1, an inhibitor of ceramide synthase (45), did not inhibit the effects of D-e-MAPP on growth (FIG. 7).

**Monograph number:** 4311.
**Title: Fumonisin $B_1$.**
**CAS Registry number:** [116355-83-0]
**CAS name(s):** 1,2,3-propanetricarboxylic acid 1,1'-[1-(12-amino-4,9,11-trihydroxy-2-methyltridecyl)-2-(1-methylpentyl)-1,2-ethanediyl] ester;
**Additional name(s):** macrofusine; $FB_1$.
**Molecular formula:** $C_{34}H_{59}NO_{15}$;
**Molecular weight:** 721.84.
**Percent Composition:** C 56.57%, H 8.24%, N 1.94%, O 33.25%.
**Literature references:** Most prevalent of a family of mycotoxins produced by *Fusarium moniliforme,* a common mold associated with corn; also isolated from other *Fusarium* species. Isolation: W. C. A. Gelderblom *et al., Appl. Environ. Microbiol.* **54,** 1806 (1988). Structure elucidation of family: S. C. Bezuidenhout *et al., Chem. Commun.* **1988,** 743. Causative agent of pulmonary edema in pig: L. R. Harrison *et al., J. Vet. Diagn. Invest.* **2,** 217 (1990). Association of $B_1$, $B_2$ with human esophageal cancer: J. P. Rheeder *et al., Phytopathology* **82,** 353 (1992). Metabolism: G. S. Shephard *et al., Toxicon.* **30,** 768 (1992). Toxicity and carcinogenicity in rat: W. C. A. Gelderblom *et al., Carcinogenesis* **12,** 1247 (1991). Toxicology in pig: W. H. Haschek *et al., Mycopathologia* **117,** 83 (1992). LC determn in corn of B series fumonisins: M. E. Stack, R. M. Eppley, *J. Assoc. Offic. Anal. Chem.* **75,** 834 (1992); P. A. Murphy *et al., J. Agric. Food Chem.* **41,** 263 (1993). Review of animal toxicoses: P. F. Ross *et al., Mycopathologia* **117,** 109-114 (1992). *Review:* W. P. Norred, *J. Toxicol. Environ. Health* **38,** 309-328 (1993).



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L11: Entry 6 of 41 File: USPT Dec 11, 2001

DOCUMENT-IDENTIFIER: US 6329574 B1
TITLE: High lysine fertile transgenic corn plants

Brief Summary Paragraph Right (116):
Production of mycotoxins, including aflatoxin and fumonisin, by fungi associated with monocotyledonous plants such as maize is a significant factor in rendering the grain not useful. These fungal organisms do not cause disease symptoms and/or interfere with the growth of the plant, but they produce chemicals (mycotoxins) that are toxic to animals. It is contemplated that inhibition of the growth of these fungi would be reduce the synthesis of these toxic substances and therefore reduce grain losses due to mycotoxin contamination. It is also proposed that it may be possible to introduce novel genes into monocotyledonous plants such as maize that would inhibit synthesis of the mycotoxin without interfering with fungal growth. Further, it is contemplated that expression of a novel gene which encodes an enzyme capable of rendering the mycotoxin nontoxic would be useful in order to achieve reduced mycotoxin contamination of grain. The result of any of the above mechanisms would be a reduced presence of mycotoxins on grain.

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TERMINAL (ENTER 1, 2, 3, OR ?):2

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| NEWS 3 | Jan 29 | FSTA has been reloaded and moves to weekly updates |
| NEWS 4 | Feb 01 | DKILIT now produced by FIZ Karlsruhe and has a new update frequency |
| NEWS 5 | Feb 19 | Access via Tymnet and SprintNet Eliminated Effective 3/31/02 |
| NEWS 6 | Mar 08 | Gene Names now available in BIOSIS |
| NEWS 7 | Mar 22 | TOXLIT no longer available |
| NEWS 8 | Mar 22 | TRCTHERMO no longer available |
| NEWS 9 | Mar 28 | US Provisional Priorities searched with P in CA/CAplus and USPATFULL |
| NEWS 10 | Mar 28 | LIPINSKI/CALC added for property searching in REGISTRY |
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| NEWS 16 | Apr 22 | Records from IP.com available in CAPLUS, HCAPLUS, and ZCAPLUS |
| NEWS 17 | Apr 22 | BIOSIS Gene Names now available in TOXCENTER |
| NEWS 18 | Apr 22 | Federal Research in Progress (FEDRIP) now available |

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|---|---|
| NEWS EXPRESS | February 1 CURRENT WINDOWS VERSION IS V6.0d, CURRENT MACINTOSH VERSION IS V6.0a(ENG) AND V6.0Ja(JP), AND CURRENT DISCOVER FILE IS DATED 05 FEBRUARY 2002 |
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FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002

```
=> file ca, biosis, medline
COST IN U.S. DOLLARS                                    SINCE FILE      TOTAL
                                                           ENTRY    SESSION
FULL ESTIMATED COST                                         0.21       0.21

FILE 'CA' ENTERED AT 15:21:17 ON 07 MAY 2002
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2002 AMERICAN CHEMICAL SOCIETY (ACS)

FILE 'BIOSIS' ENTERED AT 15:21:17 ON 07 MAY 2002
COPYRIGHT (C) 2002 BIOLOGICAL ABSTRACTS INC.(R)

FILE 'MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002

=> s fumonisin?
L1         3475 FUMONISIN?

=> s sphingolipid (p) l1
L2          428 SPHINGOLIPID (P) L1

=>  help
The arrow (=>) is the system prompt, where you enter a command.  For
an explanation of system commands, files, formats, etc., enter "HELP"
and the name of the item you want explained at an arrow prompt (=>).
Enter "HELP COMMANDS" for a list of commands that can be used in this
file.  Enter "HELP MESSAGES" for a list of online explanations that
are available.  The "?" can be used as a synonym for "HELP".

Help is also available at any prompt, and after any error message.
Enter "HELP" or "?" at a prompt to see an explanation of the options.
After an error message, enter "HELP" or "?" at the next prompt and you
will receive a more detailed explanation of the error and how to
correct it.

Automatic help is also available.  When AUHELP is 'ON', you will
automatically receive help following an error message.  For more
information on AUHELP, enter "HELP SET AUHELP" at an arrow
prompt (=>).

Users who need additional assistance can contact the Help Desk at
their nearest STN Service Center.  Enter "HELP STN" for information on
STN Service Centers.  You may also choose to contact the database
representative for the file you are searching, for more detailed help
on database content and search strategy.  For information on how to
contact database representatives for the current file, enter "HELP
DESK" at an arrow prompt (=>).

=> help commands
Enter one of these commands at the arrow prompt (=>).

ACTIVATE ----- Assign L#s to saved query or answer set.
ANALYZE ------ Build expand terms from answer fields.
ARCHIVE ------ Purchase rights for archiving.
DELETE ------- Delete saved or current session items.
DISPLAY ------ Display saved or current session items.
DUPLICATE ---- Determine duplicate answers
EDIT --------- Modify the text of an E-number entry.
EXPAND ------- Look at the index around a term.
```

```
FILE --------- Specify the search and display file.
FOCUS -------- Rank answers in order of relevancy.
FSEARCH ------ Find records from given patent family(s)
FSORT -------- Sort patent records by patent family
HELP --------- For help on how to use the system.
INDEX -------- Specify the Index environment.
LOGOFF ------- End the online session.
NEWS --------- Display current news about the system.
PRINT -------- Print answers offline.
REDISTRIBUTE - Purchase rights for redistribution.
SAVE --------- Save an L-numbered query or answer set.
SDI ---------- Request searches be run on file updates.
SEARCH ------- Perform a search.
SELECT ------- Build expand terms from answer fields.
SET ---------- Set terminal and interaction options.
SORT --------- Sort Answers of an L-number list
TABULATE ----- Analyze SmartSELECT L-number data.
TRANSFER ----- Extract terms from answers and search.
? ------------ The same as HELP.
Enter one of these commands at the arrow prompt (=>).


For more detailed information about a command, enter HELP followed by
the command name at an arrow prompt.

Example: => HELP SEARCH

For information on entering multiple commands at a single arrow
prompt, enter HELP COMMAND STACKING.

=> d his

     (FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002)

     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002
L1          3475 S FUMONISIN?
L2           428 S SPHINGOLIPID (P) L1

=> s l1 <1991
NUMERIC EXPRESSION NOT VALID 'L1 <1991'
NUMERIC EXPRESSION NOT VALID 'L2 <1991'
NUMERIC EXPRESSION NOT VALID 'L3 <1991'
Numeric search expressions contain an operator (=,>,<,=<,=>), a field
qualifier, and the number or a range to be searched.  Examples of
valid expressions are 'LD>6', '260-280/MW', and '10 < LD < 30'.  For a
list of field codes in the current file, enter "HELP SFIELDS" at an
arrow prompt (=>).  For more information on searching in numeric
fields, enter "HELP NUMERIC".

=> help numeric
Most files have fields with numeric data, e.g., Entry Date (/ED),
Publication Year (/PY).  You may search for a single numeric value, a
range of values, or values above or below a specified value.  To
search for a single value, e.g., a publication year of 1996, enter
either S 1996/PY or S PY=1996.  To search for a range of values, e.g.,
publication years from 1990 through 1996, enter S 1990-1996/PY or
S 1990<=PY<=1996.  Ranges are always inclusive, i.e., the endpoints
are included in the search.  In the order of precedence, numeric
operators are executed before either proximity or Boolean operators.
```

```
To learn what fields are numeric in the current file, enter HELP
SNUMERIC at an arrow prompt (=>) in the file.

=> s l1 1991-1980/py
MISSING OPERATOR L1 1991-1980/P
The search profile that was entered contains terms or
nested terms that are not separated by a logical operator.

=> s l1 and 1991-1960/py
INCONSISTENT NUMERIC RANGE EXPRESSION '1991-1960'
INCONSISTENT NUMERIC RANGE EXPRESSION '1991-1960'
INCONSISTENT NUMERIC RANGE EXPRESSION '1991-1960'
The lower limit in a numeric range must be given before the upper
limit.  For example, '5-1/C' is not valid.  The correct form is
'1-5/C'.

=> s l1 and 1960-1991/py
   2 FILES SEARCHED...
L3           99 L1 AND 1960-1991/PY

=> dup rem l3
PROCESSING COMPLETED FOR L3
L4           55 DUP REM L3 (44 DUPLICATES REMOVED)

=> fumonisin b1 and l4
FUMONISIN IS NOT A RECOGNIZED COMMAND
The previous command name entered was not recognized by the system.
For a list of commands available to you in the current file, enter
"HELP COMMANDS" at an arrow prompt (=>).

=> s fumonisin b1 and l4
L5           37 FUMONISIN B1 AND L4

=> s (fumonisin b1) and l4
L6           37 (FUMONISIN B1) AND L4

=> s admin? or topical? or oral? or patient? or consum? or inject? or rectal?
or system? or human? or mammal?
 95% OF LIMIT FOR TOTAL ANSWERS REACHED
   2 FILES SEARCHED...
SYSTEM LIMITS EXCEEDED - SEARCH ENDED
L7    12467349 ADMIN? OR TOPICAL? OR ORAL? OR PATIENT? OR CONSUM? OR INJECT?
               OR RECTAL? OR SYSTEM? OR HUMAN? OR MAMMAL?
The search profile you entered was too complex or gave too many
answers.  Simplify or subdivide the query and try again.  If you have
exceeded the answer limit, enter DELETE HISTORY at an arrow prompt
(=>) to remove all previous answers sets and begin at L1.  Use the
SAVE command to store any important profiles or answer sets before
using DELETE HISTORY.

=> s l7 (p) l4
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L28 (P) L31'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L29 (P) L33'
PROXIMITY OPERATOR LEVEL NOT CONSISTENT WITH
FIELD CODE - 'AND' OPERATOR ASSUMED 'L30 (P) L35'
L8           18 L7 (P) L4

=> dup rem l8
```

PROCESSING COMPLETED FOR L8
L9 18 DUP REM L8 (0 DUPLICATES REMOVED)

=> d 1-18 ab,bib

L9 ANSWER 1 OF 18 CA COPYRIGHT 2002 ACS
AB Incubation of rat hepatocytes with **fumonisins** inhibited incorporation of [14C]serine into the sphingosine moiety of cellular sphingolipids with an IC50 of 0.1 .mu.M for **fumonisin** B1 (I). In contrast, I increased the amt. of the biosynthetic intermediate sphinganine, which suggests that **fumonisins** inhibit the conversion of [14C]sphinganine to N-acyl-[14C]sphinganines, a step that is thought to precede introduction of the 4,5-trans double bond of sphingosine (1986). In agreement with this mechanism, I inhibited the activity of sphingosine N-acyltransferase (ceramide synthase) in rat liver microsomes with 50% inhibition at approx. 0.1 .mu.M and reduced the conversion of [3H]sphingosine to [3H]ceramide by intact hepatocytes. As far as the authors are aware, this is the 1st discovery of a naturally occurring inhibitor of this step of sphingolipid metab. These findings suggest that disruption of the de novo pathway of sphingolipid biosynthesis may be a crit. event in the diseases that have been assocd. with **consumption** of **fumonisins**.
AN 115:129684 CA
TI Inhibition of sphingolipid biosynthesis by **fumonisins**. Implications for diseases associated with Fusarium moniliforme
AU Wang, Elaine; Norred, William P.; Bacon, Charles W.; Riley, Ronald T.; Merrill, Alfred H., Jr.
CS Sch. Med., Emory Univ., Atlanta, GA, 30322, USA
SO J. Biol. Chem. (**1991**), 266(22), 14486-90
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English

L9 ANSWER 2 OF 18 CA COPYRIGHT 2002 ACS
AB Corn-based **human** foods from retail outlet in 5 countries were analyzed for **fumonisin** B1 (FB1) and **fumonisin** B2 (FB2). The highest mean concns. occurred in 2 Egyptian samples (2380 ng FB1/g and 595 ng FB2/g). Only 1 of 4 Peruvian samples contained 660 ng FB1/g and 68 ng FB2/g, and only 1 of 2 Canadian samples contained a detectable level of FB1. The 16 corn meal and 10 corn grits products from the USA contained mean concns. of 1048 ng FB1/g and 298 ng FB2/g and 601 ng/g FB1 and 375 ng/g FB2, resp., and the mean concns. in 52 corn meal and 18 grits samples from South Africa were 138 ng FB1/g and 83 ng FB2/g and 125 ng FB1/g and 85 ng FB2/g, resp. Only 1 of 10 cornflakes/lime-treated samples contained a low level of FB1. Of several samples obtained from a high esophageal cancer risk area in the USA 7 of 7 contained FB1 (105-1915 ng/g) and 6 of 7 had FB2 (70-450 ng/g).
AN 115:254522 CA
TI **Fumonisin** contamination of commercial corn-based **human** foodstuffs
AU Sydenham, Eric W.; Shephard, Gordon S.; Thiel, Pieter G.; Marasas, Walter F. O.; Stockenstrom, Sonja
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Agric. Food Chem. (**1991**), 39(11), 2014-18

CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L9 ANSWER 3 OF 18 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:331128 BIOSIS
DN BR41:27678
TI INHIBITION OF SPHINGOSINE BIOSYNTHESIS BY **FUMONISINS** MYCOTOXINS PRODUCED BY FUSARIUM-MONILIFORME.
AU WANG E; MERRILL A H JR; NORRED W P; BACON C; RILEY R T
CS DEP. BIOCHEM., EMORY UNIV. SCH. MED., ATLANTA, GA. 30322, USA.
SO 75TH ANNUAL MEETING OF THE FEDERATION OF AMERICAN SOCIETIES FOR EXPERIMENTAL BIOLOGY, ATLANTA, GEORGIA, USA, APRIL 21-25, 1991. FASEB (FED
AM SOC EXP BIOL) J. (1991) 5 (6), A1605.
CODEN: FAJOEC. ISSN: 0892-6638.
DT Conference
FS BR; OLD
LA English

L9 ANSWER 4 OF 18 CA COPYRIGHT 2002 ACS
AB **Fumonisins** B1 (FB1) and B2 (FB2), two structurally related mycotoxins with cancer-promoting activity, were recently isolated from corn cultures of Fusarium moniliforme MRC 826. These toxins have been reported to be produced also by isolates of F. proliferatum. Contamination of foods and feeds by F. moniliforme has been assocd. with **human** esophageal cancer risk, and FB1 has been shown to be the causative agent of the neurotoxic disease leukocencephalomalacia in horses. Because of the toxicol. importance of the **fumonisins**, the potential to produce FB1 and FB2 was detd. in a study of 40 toxic Fusarium isolates representing 27 taxa in 9 of the 12 sections of Fusarium, as well as two recently described species not yet classified into sections. With the exception of one isolate of F. nygamai, **fumonisin** prodn. was restricted to isolates of F. moniliforme and F. proliferatum, in the section Liseola. The F. nygamai isolate produced 605 .mu.g of FB1 g-1 and 530 .mu.g of FB2 g, and the identity of the toxins was confirmed by capillary gas chromatog.-mass spectrometry. This is the first report of the prodn. of the **fumonisins** of F. nygamai.
AN 114:203317 CA
TI Survey of **fumonisin** production by Fusarium species
AU Thiel, P. G.; Marasas, W. F. O.; Sydenham, E. W.; Shephard, G. S.; Gelderblom, W. C. A.; Nieuwenhuis, J. J.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO Appl. Environ. Microbiol. (**1991**), 57(4), 1089-93
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L9 ANSWER 5 OF 18 CA COPYRIGHT 2002 ACS
AB **Fumonisins** B1 and B2 are mycotoxins, recently reported to exhibit cancer-promoting activity. These toxins are produced by the fungus Fusarium moniliforme. Two thin-layer chromatog. (TLC) **systems** are proposed as useful and rapid tests for isolation and identification, which do not require high-performance liq. chromatog. (HPLC) derivatization. **Fumonisins** B1 and B2 were dissolved in methanol (anal. grade from Merck), and 5 .mu.g of each soln. were spotted on silica plates (Merck). The two **systems** are: (1) chloroform/methanol/acetic acid (60:35:10) run on normal-phase silica

(Merck, Art. 5554) and (2) methanol/water (80:20) run on octadecyl silica (Merck, Art. 15423). The reversed-phase silica plates were not silanized and were activated by a 10-min heating period at 110.degree.. These two **systems** give good resoln. and easily sep. the two **fumonisins** B1 and B2. Visualization was accomplished using acidic anisaldehyde reagent. In addn., a static culture of F. moniliforme on maize, as previously reported, was extd. and concd. in Et acetate and analyzed with the two pure com. samples. The retention factors (Rf) for the **fumonisins** in each **system** were detd. The static culture was found to contain **fumonisin** B1 (for which a quant. evaluation was even possible) and minute amts. of **fumonisin** B2.

AN 116:35751 CA
TI Fast thin-layer chromatography **systems** for **fumonisin** isolation and identification
AU Ackermann, T.
CS Makor Chem., Jerusalem, 91064, Israel
SO J. Appl. Toxicol. (**1991**), 11(6), 451
CODEN: JJATDK; ISSN: 0260-437X
DT Journal
LA English

L9 ANSWER 6 OF 18 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1992:58558 BIOSIS
DN BR42:22458
TI FAST THIN-LAYER CHROMATOGRAPHY **SYSTEMS** FOR **FUMONISIN** ISOLATION AND IDENTIFICATION.
AU ACKERMANN T
CS MAKOR CHEMICALS, P.O. BOX 6570, 91064 JERUSALEM, ISRAEL.
SO J. Appl. Toxicol., (1991) 11 (6), 451-452.
CODEN: JJATDK. ISSN: 0260-437X.
FS BR; OLD
LA English

L9 ANSWER 7 OF 18 CA COPYRIGHT 2002 ACS
AB The presence of mycotoxins in a wide range of foods can lead to many different toxic conditions in both man and domestic animals. The major fungi responsible for producing these toxins are species of Aspergillus, Penicillium, Fusarium and Alternaria, although other genera are involved as well, for example Claviceps, Diplodia and Arthrinium. An overview is given of the major mycotoxins responsible for illnesses following ingestion of contaminated foods, with particular emphasis on the effects produced in **humans**. Compds. discussed include the aflatoxins, cyclopiazonic acid, tenuazonic acid, the trichothecenes, zearalenone, wortmannin, **fumonisins** B1 and B2, patulin, ochratoxin A, diplodiatoxin and diplosporin.

AN 117:6167 CA
TI Mycotoxins in food
AU Blunden, G.; Roch, O. G.; Rogers, D. J.; Coker, R. D.; Bradburn, N.; John, A. E.
CS Sch. Pharm. Biomed. Sci., Portsmouth Polytech., Portsmouth, PO1 2DZ, UK
SO Med. Lab. Sci. (**1991**), 48(4), 271-82
CODEN: MLASDU; ISSN: 0308-3616
DT Journal; General Review
LA English

L9 ANSWER 8 OF 18 MEDLINE
AB During the fall of 1989 and winter of 1990, numerous reports of equine leukoencephalomalacia (ELEM) occurred from many regions of the United States. Typically, horses were **consuming** feed partially or

entirely composed of corn and/or corn screenings. From October 1989 through May 1990, samples from 55 confirmed or suspected ELEM cases were received at the National Veterinary Services Laboratories, Ames, Iowa, for **fumonisin** B1 analysis. Samples from 9 cases in 1984-1985 were also obtained. **Fumonisin** B1, a mycotoxin produced by Fusarium moniliforme, causes ELEM, but little is known of naturally occurring toxic or safe levels in feeds. To determine what levels of **fumonisin** B1 in feeds are associated with ELEM, 45 selected cases were studied. The **fumonisin** B1 concentrations ranged from less than 1 ppm to 126 ppm, with the majority of the samples above 10 ppm. All types of feeds were included: corn, screenings, sweet feeds, and commercially pelleted rations. The length of exposure varied from 7 to greater than 35 days. Horse feed samples not associated with ELEM were also collected and analyzed. None of the nonproblem feed samples contained **fumonisin** B1 levels greater than 8 ppm.

AN 92002393 MEDLINE
DN 92002393 PubMed ID: 1911996
TI **Fumonisin** B1 concentrations in feeds from 45 confirmed equine leukoencephalomalacia cases.
AU Ross P F; Rice L G; Reagor J C; Osweiler G D; Wilson T M; Nelson H A; Owens D L; Plattner R D; Harlin K A; Richard J L; +
CS US Department of Agriculture, National Veterinary Services Laboratories, Ames, IA 50010.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1991 Jul)** 3 (3) 238-41.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199111
ED Entered STN: 19920124
Last Updated on STN: 19920124
Entered Medline: 19911121

L9 ANSWER 9 OF 18 CA COPYRIGHT 2002 ACS
AB A series of cultured **mammalian** cell lines were examd. to develop a more rapid and sensitive bioassay **system**, which may be useful for examg. structure-activity relationships and the mechanism(s) of action of a series of structurally related mycotoxins **fumonisins** B1 and B2 and AAL toxin. Of 9 rat hepatoma cell lines tested, all except the two most de-differentiated lines were sensitive to the three toxins, with a toxic response visible by 48 h. Approx. IC50 values for the most sensitive 100 .mu.L cultures. Among 15 cell lines from other sources, only MDCK dog kidney epithelial cells were sensitive (IC50 = 2.5, 2 and 5 .mu.g/mL, resp.). Studies in co-cultures of sensitive and insensitive cell lines and in cultures of a sensitive cell line over a range of cell densities indicated that cytotoxicity of **fumonisins** B1 and B2 does not involve metabolite activation to a deriv. stable enough to diffuse to adjacent cells.
AN 116:77941 CA
TI Toxicity of the mycotoxins **fumonisins** B1 and B2 and Alternaria alternata f. sp. lycopersici toxin (AAL) in cultured **mammalian** cells
AU Shier, W. T.; Abbas, H. K.; Mirocha, C. J.
CS Dep. Med. Chem., Univ. Minnesota, St. Paul, MN, 55108, USA

SO Mycopathologia (**1991**), 116(2), 97-104
CODEN: MYCPAH; ISSN: 0301-486X
DT Journal
LA English

L9 ANSWER 10 OF 18 CA COPYRIGHT 2002 ACS
AB Moldy and healthy corn samples were collected from 2 opposing **human** esophageal cancer prevalence areas of the Transkei, southern Africa, during 1985, and screened mycol. The moldy corn samples were analyzed for the presence of several Fusarium mycotoxins, including deoxynivalenol (DON), diacetoxyscirpenol (DAS), moniliformin (MON), nivalenol (NIV), T-2 toxin, zearalenone (ZEA), **fumonisins** B1 (FB1) and B2 (FB2), and tricarballylic acid [(TCA), a compd. present in the structures of the **fumonisins**]. The healthy corn samples were screened for the presence of FB1 and FB2. High concns. of DON, MON, NIV, ZEA, FB1, and FB2 were recorded in the moldy corn samples. Statistical correlations between the incidence of Fusarium species and mycotoxin levels, present in the corn samples, agreed with the toxin-producing abilities of the individual Fusarium species. Addnl. data
clearly indicated that significantly higher levels of both FB1 and FB2 were present in the healthy corn samples from the high esophageal cancer rate area than in corresponding samples from the low-rate area.
AN 113:151009 CA
TI Natural occurrence of some Fusarium mycotoxins in corn from low and high esophageal cancer prevalence areas of the Transkei, Southern Africa
AU Sydenham, Eric W.; Thiel, Pieter G.; Marasas, Walter F. O.; Shephard, Gordon S.; Van Schalkwyk, Dirk J.; Koch, Klaus R.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Agric. Food Chem. (**1990**), 38(10), 1900-3
CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L9 ANSWER 11 OF 18 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AN 1991:42865 BIOSIS
DN BR40:19845
TI TOXICITY OF THE MYCOTOXINS **FUMONISINS** B-1 AND B-2 AND ALTERNARIA-ALTERNATA-F-SP-LYCOPERSICI AAL TOXIN IN CULTURED **MAMMALIAN** CELL LINES.
AU SHIER W T; ABBAS H K; MIROCHA C J
CS DEP. MED. CHEM., UNIV. MINN., ST. PAUL, MINN. 55108, USA.
SO 1990 ANNUAL MEETING OF THE AMERICAN PHYTOPATHOLOGICAL SOCIETY AND THE CANADIAN PHYTOPATHOLOGICAL SOCIETY, GRAND RAPIDS, MICHIGAN, USA, AUGUST 4-8, 1990. PHYTOPATHOLOGY. (1990) 80 (10), 1052.
CODEN: PHYTAJ. ISSN: 0031-949X.
DT Conference
FS BR; OLD
LA English

L9 ANSWER 12 OF 18 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Leukoencephalomalacia (LEM) was induced by the **oral administration** of **fumonisin** B1 (FB1) to 2 horses: a filly received 59,5 mg/kg of a 50% preparation of FB1, **administered** in 21 doses of 1,25-4 mg/kg over 33 days; a colt, 44,3 mg/kg of 95% pure FB1 in 20 doses of 1-4 mg/kg in 29 days. Both animals developed nervous signs such as apathy, changes in temperament, inco-ordination, walking into objects, and one showed paralysis of the lips and tongue. Characteristic lesions of LEM were present in the brains.

These trials proved conclusively that FB1 can induce LEM in horses.

AN 1991:325320 BIOSIS
DN BA92:35835
TI LEUKOENCEPHALOMALACIA IN TWO HORSES INDUCED BY **ORAL** DOSING OF **FUMONISIN** B-1.
AU KELLERMAN T S; MARASAS W F O; THIEL P G; GELDERBLOM W C A; CAWOOD M; COETZER J A W
CS VETERINARY RES. INST., ONDERSTEPOORT 0110, SOUTH AFRICA.
SO ONDERSTEPOORT J VET RES, (1990) 57 (4), 269-276.
CODEN: OJVRAZ. ISSN: 0030-2465.
FS BA; OLD
LA English

L9 ANSWER 13 OF 18 MEDLINE
AB Pulmonary edema and hydrothorax were observed in mature swine that died approximately 5 days after **consuming** corn screenings. These postmortem observations were reproduced in younger swine (16-24 kg) that died within 1 week when fed the corn screenings under experimental conditions. Additionally, pulmonary edema and hydrothorax occurred in a pig (7.1 kg) that died after receiving 4 daily intravenous **injections** of **fumonisin** B1. A fungus was isolated from the corn screenings that is identical to Fusarium moniliforme MRC-826 in colony morphology and under microscopic examination.
AN 91242753 MEDLINE
DN 91242753 PubMed ID: 2094448
TI Pulmonary edema and hydrothorax in swine produced by **fumonisin** B1, a toxic metabolite of Fusarium moniliforme.
AU Harrison L R; Colvin B M; Greene J T; Newman L E; Cole J R Jr
CS Veterinary Diagnostic and Investigational Laboratory, University of Georgia, Tifton 31794.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1990 Jul)** 2 (3) 217-21.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910719
Last Updated on STN: 19910719
Entered Medline: 19910702

L9 ANSWER 14 OF 18 CA COPYRIGHT 2002 ACS
AB F. moniliforme has been assocd. with several diseases, including equine leukoencephalomalacia, **human** esophageal cancer, and hepatotoxicity/hepatocarcinogenicity in lab. animals. The potential health risks to animals and **humans** posed by F. moniliforme-contaminated grains cannot be assessed until the toxins are identified and toxicol. evaluated. As part of a **systematic** approach to identifying the hepatotoxins produced by F. moniliforme, diets contg. aq. and chloroform/methanol (1:1) exts. of F. moniliforme strain MRC 826 culture material (CM) and/or the extd. CM residues were fed to male Sprague-Dawley rats for four weeks. Serum alanine aminotransferase, aspartate aminotransferase, and alk. phosphatase activities were increased after two and four weeks, and microscopic liver lesions were found in those animals fed aq. CM ext. and the CM residue after chloroform/methanol extn. **Fumonisins** B1 and B2 were extd. from the CM by water, but

not chloroform/methanol, and were present in the toxic diets at concns. of
93-139 and 82-147 ppm, resp. Nontoxic diets contained .ltoreq.22 ppm **fumonisin** B1 and .ltoreq.65 ppm **fumonisin** B2.

AN 115:24074 CA
TI Comparative studies of hepatotoxicity and **fumonisin** B1 and B2 content of water and chloroform/methanol extracts of Fusarium monififorme strain MRC 826 culture material
AU Voss, Kenneth A.; Plattner, Ronald D.; Bacon, Charles W.; Norred, William P.
CS Toxicol. Mycotoxin Res. Unit, Agric. Res. Serv., Athens, GA, 30613, USA
SO Mycopathologia (**1990**), 112(2), 81-92
CODEN: MYCPAH; ISSN: 0301-486X
DT Journal
LA English

L9 ANSWER 15 OF 18 CA COPYRIGHT 2002 ACS
AB A bioassay was developed to det. the potential toxicity of corn naturally contaminated with Fusarium moniliforme. Two groups of five male Sprague-Dawley rats were each fed one of two F. moniliforme-contaminated corn samples, designated CS-1 and CS-2, that were assocd. with sep. field cases of equine leukoencephalomalacia. A control group, also consisting of 5 male rats, was fed uncontaminated seed corn. All animals survived to
the end of the study, and there were no apparent differences in appearance
or behavior among groups. Wt. loss and irregular food **consumption** occurred in all groups and probably resulted from nutritional deficiencies
inherent in the corn diets. Hepatocellular degeneration, necrosis and hyperplasia as well as biliary hyperplasia were found in the test groups only and were attributed to F. moniliforme. Serum transaminase and alk. phosphatase activities in animals fed CS-1 and CS-2 for 4 wk were significantly increased compared with the controls, while serum bilirubin concn. was increased only in the CS-1 group. Tubular nephrosis was also present in the renal cortex of all animals fed CS-1 and CS-2. These effects may have been related to **fumonisins** B1 and B2, recently discovered metabolites of F. moniliforme, that were found in both CS-1 and
CS-2. Short-term studies of this type may be useful in screening naturally-contaminated grains and other materials for hepatotoxic metabolites produced by F. moniliforme.

AN 111:22330 CA
TI Hepatotoxicity and renal toxicity in rats of corn samples associated with field cases of equine leukoencephalomalacia
AU Voss, K. A.; Norred, W. P.; Plattner, R. D.; Bacon, C. W.
CS Richard B. Russell Agric. Res. Cent., Agric. Res. Serv., Athens, GA, 30613, USA
SO Food Chem. Toxicol. (**1989**), 27(2), 89-96
CODEN: FCTOD7; ISSN: 0278-6915
DT Journal
LA English

L9 ANSWER 16 OF 18 CA COPYRIGHT 2002 ACS
AB Two new mycotoxins, macrofusin (similar to **fumonisine** B1; see C.A. Bezuidenhout et al, 1988) and micromonilin, were isolated from macroconidies or microconidies of F. moniliforme cultivated on corn. Macrofusin, given by esophageal **injection** is toxic in rats and leads to icterus. Micromonilin acts on the sodium channel. The possible action of the toxins in equine leukoencephalomalacia and assocd. symptoms

is discussed.
AN 112:173806 CA
TI Macrofusin and micromonilin: two new mycotoxins isolated from corn infested by Fusarium moniliforme Sheld
AU Laurent, D.; Platzer, Nicole; Kohler, F.; Sauviat, M. P.; Pellegrin, F.
CS Lab. Phytopathol., ORSTOM, Nouvelle-Caledonie, Fr.
SO Microbiol., Aliments, Nutr. (**1989**), 7(1), 9-16
CODEN: MANUEP; ISSN: 0759-0644
DT Journal
LA French

L9 ANSWER 17 OF 18 CA COPYRIGHT 2002 ACS
AB Culture material of F. moniliforme isolate exhibits cancer-promoting activity in a short-term cancer initiation-promotion bioassay with diethylnitrosamine-initiated rats and induces .gamma.-glutamyltranspeptidase-pos. (GGT+) foci as an endpoint after 4 wk of promotion. This bioassay was used as a monitoring **system** to isolate cancer-promoting compds. from cultures of F. moniliforme MRC 826. Culture material was successively extd. with Et acetate and MeOH-H2O (3:1). Most of the cancer-promoting activity was recovered in the MeOH-H2O ext. and remained in the aq. phase following partitioning of this ext. between MeOH-H2O (1:3) and CHCl3. The MeOH-H2O fraction was chromatographed on an Amberlite XAD-2 column, and the active fraction was eluted with MeOH. This fraction was chromatographed on a silica gel column with CHCl3-MeOH-MeCO2H (6:3:1) as eluent and further purified on a C18 reverse-phase column. Two pure compds. were isolated, and these have been chem. characterized and given the trivial names **fumonisin** B1 and B2. At least 2 g of the major compd. **fumonisin** B1 was purified from 1 kg of culture material. **Fumonisin** B1 in the diet (0.1%) significantly induced the formation of GGT+ foci in the livers of initiated as well as noninitiated rats. The cancer-promoting effect of **fumonisin** B1 in rats was assocd. with a toxic effect, as evidenced by a significant redn. in wt. gain during the 4-wk promoting treatment. The principal pathol. change in rats treated with **fumonisin** B1 was an insidious and progressive toxic hepatitis similar to that induced by toxic culture material of F. moniliforme MRC 826.
AN 109:124164 CA
TI **Fumonisins**-novel mycotoxins with cancer-promoting activity produced by Fusarium moniliforme
AU Gelderblom, W. C. A.; Jaskiewicz, K.; Marasas, W. F. O.; Thiel, P. G.; Horak, R. M.; Vleggaar, R.; Kriek, N. P. J.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO Appl. Environ. Microbiol. (**1988**), 54(7), 1806-11
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L9 ANSWER 18 OF 18 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Each of two horses was dosed by stomach tube with culture material on maize of Fusarium moniliforme MRC 826. One horse developed severe hepatosis and mild oedema of the brain after 6 doses of 2.5 g of culture material/kg body mass/day in 7 days. The second horse, in a similar experiment but at a dosage rate of 1.25 g/kg/day, developed mild hepatosis and moderate oedema of the brain. In both animals the brain oedema was particularly noticeable in the medula oblonagta. The mycotoxin

**fumonisin** B1 was extracted and purified from the culture material of F. moniliforme MRC, 826 which contained approximately 1 g/kg of this compound. A horse was **injected** intravenously 7 times from Day 0-Day 9 with 0.125 mg of **fumonisin** B1/kg body mass/day. Clinical signs of neurotoxicosis, which appeared on Day 8, included nervousness followed by apathy, a wide-based stance, trembling, ataxia, reluctance to move, paresis of the lower lip and tongue, and an inability to eat or drink. Euthanasia was performed on the horse on Day 10 while the animal was in a tetanic convulsion. The principal lesions were severe oedema of the brain and early, bilaterally symmetrical, focal necrosis in the medulla oblongata. This report provides experimental evidence that **fumonisin** B1, produced by F. moniliforme, causes equine leukoencephalomalacia.

AN 1989:274863 BIOSIS
DN BA88:10945
TI LEUKOENCEPHALOMALACIA IN A HORSE INDUCED BY **FUMONISIN** B-1 ISOLATED FROM FUSARIUM-MONILIFORME.
AU MARASAS W F O; KELLERMAN T S; GELDERBLOM W C A; COETZER J A W; THIEL P G; VAN DER LUGT J J
CS S. AFR. MED. RES. COUNCIL, P.O. BOX 70, TYGERBERG 7505, S. AFR.
SO ONDERSTEPOORT J VET RES, (1988) 55 (4), 197-204.
CODEN: OJVRAZ. ISSN: 0030-2465.
FS BA; OLD
LA English

=> d his

(FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002)

FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002
L1 3475 S FUMONISIN?
L2 428 S SPHINGOLIPID (P) L1
L3 99 S L1 AND 1960-1991/PY
L4 55 DUP REM L3 (44 DUPLICATES REMOVED)
L5 37 S FUMONISIN B1 AND L4
L6 37 S (FUMONISIN B1) AND L4
L7 12467349 S ADMIN? OR TOPICAL? OR ORAL? OR PATIENT? OR CONSUM? OR INJECT?
L8 18 S L7 (P) L4
L9 18 DUP REM L8 (0 DUPLICATES REMOVED)

=> dup rem l6
PROCESSING COMPLETED FOR L6
L10 37 DUP REM L6 (0 DUPLICATES REMOVED)

=> d 1-37 ab,bib

L10 ANSWER 1 OF 37 MEDLINE
AN 91258193 MEDLINE
DN 91258193 PubMed ID: 2045319
TI **Fumonisin** mycotoxins and equine leukoencephalomalacia.
CM Comment on: J Am Vet Med Assoc. 1991 Jan 1;198(1):126-8
AU Wilson T M; Ross P F; Nelson P E
SO JOURNAL OF THE AMERICAN VETERINARY MEDICAL ASSOCIATION, **(1991 Apr 1)** 198 (7) 1104-5.
Journal code: HAV; 7503067. ISSN: 0003-1488.
CY United States
DT Commentary
Letter

LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910802
Last Updated on STN: 19910802
Entered Medline: 19910712

L10 ANSWER 2 OF 37 CA COPYRIGHT 2002 ACS
AB Incubation of rat hepatocytes with **fumonisins** inhibited incorporation of [14C]serine into the sphingosine moiety of cellular sphingolipids with an IC50 of 0.1 .mu.M for **fumonisin B1** (I). In contrast, I increased the amt. of the biosynthetic intermediate sphinganine, which suggests that **fumonisins** inhibit the conversion of [14C]sphinganine to N-acyl-[14C]sphinganines, a step that is thought to precede introduction of the 4,5-trans double bond of sphingosine (1986). In agreement with this mechanism, I inhibited the activity of sphingosine N-acyltransferase (ceramide synthase) in rat liver microsomes with 50% inhibition at approx. 0.1 .mu.M and reduced the conversion of [3H]sphingosine to [3H]ceramide by intact hepatocytes. As far as the authors are aware, this is the 1st discovery of a naturally occurring inhibitor of this step of sphingolipid metab. These findings suggest that disruption of the de novo pathway of sphingolipid biosynthesis may be a crit. event in the diseases that have been assocd. with consumption of **fumonisins**.
AN 115:129684 CA
TI Inhibition of sphingolipid biosynthesis by **fumonisins**. Implications for diseases associated with Fusarium moniliforme
AU Wang, Elaine; Norred, William P.; Bacon, Charles W.; Riley, Ronald T.; Merrill, Alfred H., Jr.
CS Sch. Med., Emory Univ., Atlanta, GA, 30322, USA
SO J. Biol. Chem. (**1991**), 266(22), 14486-90
CODEN: JBCHA3; ISSN: 0021-9258
DT Journal
LA English

L10 ANSWER 3 OF 37 CA COPYRIGHT 2002 ACS
AB Strains of F. moniliforme from different geog. areas and from corn and other substrates were tested for the ability to produce **fumonisins** in culture. The test results indicate that the potential exists for prodn. of **fumonisins** by such strains in agricultural commodities and other substrates in widespread geog. areas.
AN 115:131671 CA
TI Production of **fumonisins** by Fusarium moniliforme strains from various substrates and geographic areas
AU Nelson, Paul E.; Plattner, Ronald D.; Shackelford, Darcy D.; Desjardins, Anne E.
CS Fusarium Res. Cent., Pennsylvania State Univ., University Park, PA, 16802, USA
SO Appl. Environ. Microbiol. (**1991**), 57(8), 2410-12
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L10 ANSWER 4 OF 37 CA COPYRIGHT 2002 ACS
AB Corn-based human foods from retail outlet in 5 countries were analyzed for **fumonisin B1** (FB1) and **fumonisin** B2 (FB2).

The highest mean concns. occurred in 2 Egyptian samples (2380 ng FB1/g and 595 ng FB2/g). Only 1 of 4 Peruvian samples contained 660 ng FB1/g and 68 ng FB2/g, and only 1 of 2 Canadian samples contained a detectable level of FB1. The 16 corn meal and 10 corn grits products from the USA contained mean concns. of 1048 ng FB1/g and 298 ng FB2/g and 601 ng/g FB1 and 375 ng/g FB2, resp., and the mean concns. in 52 corn meal and 18 grits samples from South Africa were 138 ng FB1/g and 83 ng FB2/g and 125 ng FB1/g and 85 ng FB2/g, resp. Only 1 of 10 cornflakes/lime-treated samples contained a low level of FB1. Of several samples obtained from a high esophageal cancer risk area in the USA 7 of 7 contained FB1 (105-1915 ng/g) and 6 of 7 had FB2 (70-450 ng/g).

AN 115:254522 CA
TI **Fumonisin** contamination of commercial corn-based human foodstuffs
AU Sydenham, Eric W.; Shephard, Gordon S.; Thiel, Pieter G.; Marasas, Walter F. O.; Stockenstrom, Sonja
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Agric. Food Chem. (**1991**), 39(11), 2014-18
CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L10 ANSWER 5 OF 37 CA COPYRIGHT 2002 ACS
AB A method for the preparative-scale isolation of the **fumonisin** B (FB) mycotoxins, from corn cultures of Fusarium moniliforme, was described and quant. evaluated. Eighty percent of FB1 and 60% of FB2 were recovered after extn. with CH3OH/H2O (3:1). The **fumonisins**, including the newly discovered FB3 and FB4, were purified using Amberlite XAD-2, silica gel, and reversed-phase C18 chromatog. The Amberlite XAD-2 purifn. step proved to be the most effective cleanup procedure, whereas subsequent chromatog. on silica gel and RP C18 effectively sep. the individual **fumonisins** to a purity of over 90%. The relatively low final yield (40%) of FB1 and FB2 may be ascribed to (1) the strong affinity of FB1 for silica gel, (2) the low initial recovery (60%) of FB2, and (3) the formation of monomethyl and di-Me esters of FB1 and FB2, as well as their interference in the purifn. of the individual **fumonisins**. The N-acetyl derivs. of FB1 and FB2 were also purified and shown to be metabolites of F. moniliforme.
AN 115:249688 CA
TI Isolation of the **fumonisin** mycotoxins: A quantitative approach
AU Cawood, Maria E.; Gelderblom, Wentzel C. A.; Vleggaar, Robert; Behrend, Yosef; Thiel, Pieter G.; Marasas, Walter F. O.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Agric. Food Chem. (**1991**), 39(11), 1958-62
CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L10 ANSWER 6 OF 37 CA COPYRIGHT 2002 ACS
AB A semipurified corn-based diet contg. 50 mg/kg of pure (not <90%)

**fumonisin B1** (FB1), isolated from culture material of F. moniliforme strain MRC 826, was fed to a group of 25 rats over a period of 26 mo. Five rats from each group were killed at 6, 12, 20, and 26 mo. The liver was the main target organ in the FB1-treated rats and the hepatic pathol. changes were identical to those previously reported in rats fed culture material of F. moniliforme MRC 826. All FB1-treated rats that died or were killed from 18 mo onwards suffered from a micro- and macronodular cirrhosis and had large expansile nodules of cholangiofibrosis at the hilus of the liver. Ten of 15 FB1-treated rats (66%) that were killed and(or) died between 18 and 26 mo developed primary hepatocellular carcinoma. Metastases to the heart, lungs, or kidneys were present in four of the rats with hepatocellular carcinoma. No neoplastic changes were obsd. in any of the control rats. Chronic interstitial nephritis was present in the kidneys of FB1-treated rats killed after 26 mo. No lesions were obsd. in the esophagus, heart, or forestomach of FB1-treated rats and this is contrary to previous findings when culture material of the fungus was fed to rats. It is concluded that FB1 is responsible for the hepatocarcinogenic and the hepatotoxic but not all the other toxic effects of culture material of F. moniliforme MRC 826 in rats.

AN 115:87281 CA
TI Toxicity and carcinogenicity of the Fusarium moniliforme metabolite, **fumonisin B1** in rats
AU Gelderblom, W. C. A.; Kriek, N. P. J.; Marasas, W. F. O.; Thiel, P. G.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO Carcinogenesis (London) (**1991**), 12(7), 1247-51
CODEN: CRNGDP; ISSN: 0143-3334
DT Journal
LA English

L10 ANSWER 7 OF 37 CA COPYRIGHT 2002 ACS
AB **Fumonisins** B1 (FB1) and B2 (FB2), two structurally related mycotoxins with cancer-promoting activity, were recently isolated from corn cultures of Fusarium moniliforme MRC 826. These toxins have been reported to be produced also by isolates of F. proliferatum. Contamination of foods and feeds by F. moniliforme has been assocd. with human esophageal cancer risk, and FB1 has been shown to be the causative agent of the neurotoxic disease leukocencephalomalacia in horses. Because of the toxicol. importance of the **fumonisins**, the potential to produce FB1 and FB2 was detd. in a study of 40 toxic Fusarium isolates representing 27 taxa in 9 of the 12 sections of Fusarium, as well as two recently described species not yet classified into sections. With the exception of one isolate of F. nygamai, **fumonisin** prodn. was restricted to isolates of F. moniliforme and F. proliferatum, in the section Liseola. The F. nygamai isolate produced 605 .mu.g of FB1 g-1 and 530 .mu.g of FB2 g, and the identity of the toxins was confirmed by capillary gas chromatog.-mass spectrometry. This is the first report of the prodn. of the **fumonisins** of F. nygamai.

AN 114:203317 CA
TI Survey of **fumonisin** production by Fusarium species
AU Thiel, P. G.; Marasas, W. F. O.; Sydenham, E. W.; Shephard, G. S.; Gelderblom, W. C. A.; Nieuwenhuis, J. J.

CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO Appl. Environ. Microbiol. (**1991**), 57(4), 1089-93
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L10 ANSWER 8 OF 37 CA COPYRIGHT 2002 ACS
AB Corn is frequently contaminated by the fungus Fusarium moniliforme, which produces toxic **fumonisins**. Ammonia can effectively detoxify aflatoxins in corn and cottonseed. Since corn can be contaminated by both **fumonisins** and aflatoxins, the effects of ammoniation of corn either cultured with or naturally contaminated by F. moniliforme were investigated. **Fumonisin B1** levels in the culture material and in naturally contaminated corn were reduced by 30 and .apprx.45%, resp., by the ammonia treatment. Despite the apparent redn. in **fumonisin** content, the toxicity of the culture material in rats was not altered by ammoniation. Reduced wt. gains, elevated serum enzyme levels and histopathol. lesions, typical of F. moniliforme toxicity, occurred in rats fed either the ammoniated or non-ammoniated culture material. Atm. ammoniation of corn does not appear to be an effective method for the detoxification of F. moniliforme-contaminated corn.
AN 116:82381 CA
TI Effectiveness of ammonia treatment in detoxification of **fumonisin** -contaminated corn
AU Norred, W. P.; Voss, K. A.; Bacon, C. W.; Riley, R. T.
CS Toxicol. Mycotoxin Res. Unit, Richard B. Russell Agric. Res. Cent., Athens, GA, 30613, USA
SO Food Chem. Toxicol. (**1991**), 29(12), 815-19
CODEN: FCTOD7; ISSN: 0278-6915
DT Journal
LA English

L10 ANSWER 9 OF 37 CA COPYRIGHT 2002 ACS
AB An isolate of F. moniliforme (JW #1) was effective in producing disease symptoms in jimson weed (Datura stramonium). A major toxin identified was **fumonisin B1**, isolated from fermented rice at 400 .mu.g g-1. **Fumonisin B1** applied in water at 2.5 .mu.g 100 .mu.L-1 to excised jimson weed leaves caused the same symptomol. (i.e., soft rot diffusing along leaf veins) within 24 h as a cell-free ext. or the crude culture filtrates. Similar damage occurred to intact plants treated with crude or cell-free filtrates or purified aq. **fumonisin B1** solns.
AN 116:78514 CA
TI Bioherbicidal potential of Fusarium moniliforme and its phytotoxin **fumonisin**
AU Abbas, Hamed K.; Boyette, C. Douglas; Hoagland, Robert E.; Vesonder, Ronald F.
CS South. Weed. Sci. Lab., ARS, Stoneville, MS, 38776, USA
SO Weed Sci. (**1991**), 39(4), 673-7
CODEN: WEESA6; ISSN: 0043-1745
DT Journal
LA English

L10 ANSWER 10 OF 37 CA COPYRIGHT 2002 ACS
AB The utility of thermospray mass spectrometry (TSMS), fast-atom bombardment

mass spectrometry (FABMS), and electrospray mass spectrometry (ESMS) for the anal. of Fumonsin B1 is investigated. In addn., the anal. of two different stds. of **Fumonisin B1** as well as an inoculated corn culture ext. that contained **Fumonisin B1** is reported. The results of these efforts show that ESMS, as well as FABMS and a combination of FAB and tandem mass spectrometry (FABMS/MS), provide useful data for the characterization of **Fumonisin B1**. The detection limit was 50 pg for **Fumonisin B1** when analyzed by full scan FABMS, and 5 pg when analyzed by single-reaction monitoring FABMS/MS.

AN 115:254456 CA
TI Characterization of the mycotoxin **fumonisin B1**: comparison of thermospray, fast-atom bombardment, and electrospray mass spectrometry
AU Korfmacher, W. A.; Chiarelli, M. P.; Lay, J. O., Jr.; Bloom, J.; Holcomb, M.; McManus, K. T.
CS Natl. Cent. Toxicol. Res., U. S. FDA, Jefferson, AR, 72079, USA
SO Rapid Commun. Mass Spectrom. (**1991**), 5(10), 463-8
CODEN: RCMSEF; ISSN: 0951-4198
DT Journal
LA English

L10 ANSWER 11 OF 37 CA COPYRIGHT 2002 ACS
AB **Fumonisins** B1 and B2 are mycotoxins, recently reported to exhibit cancer-promoting activity. These toxins are produced by the fungus Fusarium moniliforme. Two thin-layer chromatog. (TLC) systems are proposed as useful and rapid tests for isolation and identification, which do not require high-performance liq. chromatog. (HPLC) derivatization. **Fumonisins** B1 and B2 were dissolved in methanol (anal. grade from Merck), and 5 .mu.g of each soln. were spotted on silica plates (Merck). The two systems are: (1) chloroform/methanol/acetic acid (60:35:10) run on normal-phase silica (Merck, Art. 5554) and (2) methanol/water (80:20) run on octadecyl silica (Merck, Art. 15423). The reversed-phase silica plates were not silanized and were activated by a 10-min heating period at 110.degree.. These two systems give good resoln. and easily sep. the two **fumonisins** B1 and B2. Visualization was accomplished using acidic anisaldehyde reagent. In addn., a static culture of F. moniliforme on maize, as previously reported, was extd. and concd. in Et acetate and analyzed with the two pure com. samples. The retention factors (Rf) for the **fumonisins** in each system were detd. The static culture was found to contain **fumonisin B1** (for which a quant. evaluation was even possible) and minute amts. of **fumonisin** B2.

AN 116:35751 CA
TI Fast thin-layer chromatography systems for **fumonisin** isolation and identification
AU Ackermann, T.
CS Makor Chem., Jerusalem, 91064, Israel
SO J. Appl. Toxicol. (**1991**), 11(6), 451
CODEN: JJATDK; ISSN: 0260-437X
DT Journal
LA English

L10 ANSWER 12 OF 37 MEDLINE
AN 92103089 MEDLINE
DN 92103089 PubMed ID: 1760472
TI Analysis of corn and cultured corn for **fumonisin B1** by HPLC and GC/MS by four laboratories.

AU Plattner R D; Ross P F; Reagor J; Stedelin J; Rice L G
CS US Department of Agriculture, National Center for Agricultural Utilization
Research, Peoria, IL 61604.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1991 Oct)** 3 (4) 357-8.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199202
ED Entered STN: 19920302
Last Updated on STN: 19920302
Entered Medline: 19920212

L10 ANSWER 13 OF 37 MEDLINE
AB During the fall of 1989 and winter of 1990, numerous reports of equine leukoencephalomalacia (ELEM) occurred from many regions of the United States. Typically, horses were consuming feed partially or entirely composed of corn and/or corn screenings. From October 1989 through May 1990, samples from 55 confirmed or suspected ELEM cases were received at the National Veterinary Services Laboratories, Ames, Iowa, for **fumonisin B1** analysis. Samples from 9 cases in 1984-1985 were also obtained. **Fumonisin B1**, a mycotoxin produced by Fusarium moniliforme, causes ELEM, but little is known of naturally occurring toxic or safe levels in feeds. To determine what levels of **fumonisin B1** in feeds are associated with ELEM, 45 selected cases were studied. The **fumonisin B1** concentrations ranged from less than 1 ppm to 126 ppm, with the majority of the samples above 10 ppm. All types of feeds were included: corn, screenings, sweet feeds, and commercially pelleted rations. The length of exposure varied from 7 to greater than 35 days. Horse feed samples not associated with ELEM were also collected and analyzed. None of the nonproblem feed samples contained **fumonisin B1** levels greater than 8 ppm.
AN 92002393 MEDLINE
DN 92002393 PubMed ID: 1911996
TI **Fumonisin B1** concentrations in feeds from 45 confirmed equine leukoencephalomalacia cases.
AU Ross P F; Rice L G; Reagor J C; Osweiler G D; Wilson T M; Nelson H A; Owens D L; Plattner R D; Harlin K A; Richard J L; +
CS US Department of Agriculture, National Veterinary Services Laboratories, Ames, IA 50010.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1991 Jul)** 3 (3) 238-41.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199111
ED Entered STN: 19920124
Last Updated on STN: 19920124
Entered Medline: 19911121

L10 ANSWER 14 OF 37 CA COPYRIGHT 2002 ACS
AB A review with 26 refs. Bacterial and fungal microbes produce a wide array of phytotoxic compds. with the potential for direct use as herbicides or

as models for new structural classes and/or new sites of action for herbicides. Bialophos and glufosinate are the only microbial products that have been commercialized without modification. Industry has generally screened large nos. of non-pathogenic microbes for new phytotoxins; however, screening smaller nos. of plant pathogens that infect weeds for phytotoxins may be equally rewarding. Two examples of toxins from plant pathogens, colletotrichin and **fumonisin B1**, are discussed in detail. Microbial toxins also offer potential new sites of action for biorational discovery of herbicides. Different strategies of herbicide discovery and development from microbial products are discussed with specific examples.

AN 117:2615 CA
TI Microbial compounds with the potential for herbicidal use
AU Duke, Stephen O.; Abbas, Hamed K.; Boyette, C. Douglas; Gohbara, Masatoshi
CS South. Weed Sci. Lab., USDA, Stoneville, MS, 38776, USA
SO Brighton Crop Prot. Conf.--Weeds (**1991**), Vol. 1 155-64
CODEN: BCPWE2; ISSN: 0955-1514
DT Journal; General Review
LA English

L10 ANSWER 15 OF 37 CA COPYRIGHT 2002 ACS
AB Ninety-eight samples of feeds assocd. with 44 cases of equine leukoencephalomalacia (ELEM) and 83 samples of feed assocd. with 42 cases of a porcine pulmonary edema syndrome (PPE) were analyzed for **fumonisin B1** (FB1). For comparison, 51 feed samples not assocd. with PPE or ELEM were also analyzed. Feed assocd. with ELEM contained FB1 ranging from <1 .mu.g/g to 126 .mu.g/g with 75% of the cases having at least 1 sample above 10 .mu.g/g. Feeds assocd. with PPE ranged from <1 .mu.g/g to 330 .mu.g/g with 71% of the cases having at least 1 sample greater than 10 .mu.g/g. Quantitation was by HPLC/fluorescence using the fluorescamine deriv. with confirmation by TLC and/or gas chromatog./mass spectroscopy.

AN 115:181719 CA
TI Concentrations of **fumonisin B1** in feeds associated with animal health problems
AU Ross, P. F.; Rice, L. G; Plattner, R. D.; Osweiler, G. D.; Wilson, T. M.; Owens, D. L.; Nelson, H. A.; Richard, J. L.
CS Anim. Plant Health Inspect. Serv., US Dept. Agric., Ames, IA, 50010, USA
SO Mycopathologia (**1991**), 114(3), 129-35
CODEN: MYCPAH; ISSN: 0301-486X
DT Journal
LA English

L10 ANSWER 16 OF 37 CA COPYRIGHT 2002 ACS
AB Leukoencephalomalacia (LEM) is a neurotoxic disease of Equidae caused by the ingestion of feed contaminated with Fusarium moniliforme. Feed samples from the United States that were fed to horses prior to the development of LEM were analyzed for **fumonisin B1** (FB1) and **fumonisin** B2 (FB2), toxic secondary metabolites of F. moniliforme. In addn., FB1, FB2, and moniliformin were detd. in cultures of 10 isolates of F. moniliforme from these samples. None of the cultures produced moniliformin but all contained both FB1 (160-3800 .mu.g/g) and FB2 (20-950 .mu.g/g). All 14 feed samples contained both FB1 (1.3-27.0 .mu.g/g) and FB2 (0.1-12.6 .mu.g/g). FB1 was the major **fumonisin** in the cultures (80-96%) as well as in the feed samples (53-93%). These results support the finding that the **fumonisins** are causative

factors in the development of LEM in horses.
AN 114:41181 CA
TI Levels of **fumonisins** B1 and B2 in feeds associated with confirmed cases of equine leukoencephalomalacia
AU Thiel, Pieter G.; Shephard, Gordon S.; Sydenham, Eric W.; Marasas, Walter F. O.; Nelson, Paul E.; Wilson, Terrance M.
CS Res. Inst. Nutr. Dis., S. Afr. Med. Res. Counc., Tygerberg, S. Afr.
SO J. Agric. Food Chem. (**1991**), 39(1), 109-11
CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L10 ANSWER 17 OF 37 CA COPYRIGHT 2002 ACS
AB A series of cultured mammalian cell lines were examd. to develop a more rapid and sensitive bioassay system, which may be useful for examg. structure-activity relationships and the mechanism(s) of action of a series of structurally related mycotoxins **fumonisins** B1 and B2 and AAL toxin. Of 9 rat hepatoma cell lines tested, all except the two most de-differentiated lines were sensitive to the three toxins, with a toxic response visible by 48 h. Approx. IC50 values for the most sensitive 100 .mu.L cultures. Among 15 cell lines from other sources, only MDCK dog kidney epithelial cells were sensitive (IC50 = 2.5, 2 and 5 .mu.g/mL, resp.). Studies in co-cultures of sensitive and insensitive cell lines and in cultures of a sensitive cell line over a range of cell densities indicated that cytotoxicity of **fumonisins** B1 and B2 does not involve metabolite activation to a deriv. stable enough to diffuse to adjacent cells.
AN 116:77941 CA
TI Toxicity of the mycotoxins **fumonisins** B1 and B2 and Alternaria alternata f. sp. lycopersici toxin (AAL) in cultured mammalian cells
AU Shier, W. T.; Abbas, H. K.; Mirocha, C. J.
CS Dep. Med. Chem., Univ. Minnesota, St. Paul, MN, 55108, USA
SO Mycopathologia (**1991**), 116(2), 97-104
CODEN: MYCPAH; ISSN: 0301-486X
DT Journal
LA English

L10 ANSWER 18 OF 37 CA COPYRIGHT 2002 ACS
AB The mutagenic behavior of two potentially carcinogenic mycotoxins produced by F. moniliforme was investigated in the Salmonella mutagenicity test using tester strains TA97a, TA98, TA100, and TA102. The mutagenic response obtained with fusarin C (1, 5, and 10 .mu.g/plate) against tester strains TA98 and TA100 in the presence of microsomal activation confirmed previous observations on the mutagenic behavior of this mutagen whereas that obtained against TA97a is reported for the first time. No dose-response relationship could be detected for the concn. levels (0.2, 0.5, 1, 5, 10 mg/plate) tested for **fumonisin B1** (FB1), FB2, and FB3 against any of the tester strains used in either the plate incorporation and(or) the preincubation tests. A cytotoxic effect was obtained at concn. levels of 5 and 10 mg/plate in the absence of the microsomal activation mixt. From the studies it became evident that F. moniliforme produces two compds., a mutagenic compd., fusarin C which has been shown to lack carcinogenic activity in rats, and the nonmutagenic **fumonisin** B mycotoxins of which FB1 is known to be responsible for the hepatocarcinogenicity of the fungus in rats.
AN 116:209470 CA
TI Mutagenicity of potentially carcinogenic mycotoxins produced by Fusarium moniliforme

AU Gelderblom, W. C. A.; Snyman, S. D.
CS Res. Inst. Nutr. Dis., Tygerberg, 7505, S. Afr.
SO Mycotoxin Res. (**1991**), 7(2), 46-52
CODEN: MYREET; ISSN: 0178-7888
DT Journal
LA English

L10 ANSWER 19 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Ten different isolates of the common corn fungus, Fusarium moniliforme, were cultured on corn, and the production by the isolates of two important mycotoxins, fusarin C and **fumonisin B1**, was compared. Additionally, both aqueous and organic extracts of the cultures were tested for cytotoxicity to rat primary hepatocytes by measuring the effects of three dose levels on the ability of the cells to take up valine and to cause the release of the cytoplasmic enzyme, lactate dehydrogenase.
The fungal isolates differed drastically in their ability to produce the two mycotoxins and in their cytotoxicity. However the toxic effects could not be accounted for by the content of the two toxins measured. Therefore it appears that there are other toxins, both organic and aqueous soluble compounds, that are toxic to liver cells.
AN 1991:429248 BIOSIS
DN BA92:85413
TI DIFFERENTIAL CYTOTOXICITY AND MYCOTOXIN CONTENT AMONG ISOLATES OF FUSARIUM-MONILIFORME.
AU NORRED W P; BACON C W; PLATTNER R D; VESONDER R F
CS TOXICOLOGY MYCOTOXIN RES. UNIT, US DEP. AGRIC., AGRIC. RES. SERVICE, R.B. RUSSELL AGRIC. RES. CENTER, ATHENS, GA. 30613.
SO MYCOPATHOLOGIA, (1991) 115 (1), 37-43.
CODEN: MYCPAH. ISSN: 0301-486X.
FS BA; OLD
LA English

L10 ANSWER 20 OF 37 CA COPYRIGHT 2002 ACS
AB **Fumonisin B1** (FB1) and FB2 were isolated from corn cultures of both F. moniliforme and F. proliferatum. Resp. concns. in culture materials of FB1 and FB2 ranged from 960 to 2350 and 120 to 320 .mu.g/g for F. moniliforme and from 1670 to 2790 and 150 to 320 .mu.g/g for F. proliferatum. Thin-layer chromatog., gas chromatog.-mass spectroscopy, high-performance liq. chromatog., and liq. secondary ion mass spectroscopy were used for detection. **Fumonisins** from F. proliferatum have not previously been reported.
AN 113:227660 CA
TI Production of **fumonisins** by Fusarium moniliforme and Fusarium proliferatum isolates associated with equine leukoencephalomalacia and a pulmonary edema syndrome in swine
AU Ross, P. F.; Nelson, P. E.; Richard, J. L.; Osweiler, G. D.; Rice, L. G.; Plattner, R. D.; Wilson, T. M.
CS Anim. Plant Health Insp. Serv., Natl. Vet. Serv. Lab., Ames, IA, 50010, USA
SO Appl. Environ. Microbiol. (**1990**), 56(10), 3225-6
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L10 ANSWER 21 OF 37 CA COPYRIGHT 2002 ACS
AB **Fumonisin B1** (I), a recently discovered mycotoxin, was synthesized by submerged cultures of F. moniliforme NRRL 13616 grown for

29 days at 28.degree. and 220 rpm in a basal salts medium (pH 5.0) supplemented with 90 g glucose and 3.5 g (NH4)SO4/L. Under these culture conditions, 74 .mu.g I/mL was produced by 29-day-old F. moiliforme NRRL 13616 cultures. I was detected in liq. culture exts. by HPLC. I was confirmed and quantitated by gas chromatog. and gas chromatog.-mass spectral anal. of the trimethylsilyl deriv. The use of a defined medium for producing I in a submerged culture facilitates its isolation and provides an excellent method for conducting biosynthetic studies.

AN 113:113750 CA
TI Production of **fumonisin B1** by Fusarium moniliforme NRRL 13616 in submerged culture
AU Jackson, Mark A.; Bennett, Glenn A.
CS North. Reg. Res. Cent., Agric. Res. Serv., Peoria, IL, 61604, USA
SO Appl. Environ. Microbiol. (**1990**), 56(8), 2296-8
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L10 ANSWER 22 OF 37 CA COPYRIGHT 2002 ACS
AB **Fumonisins** B1 (FB1) and B2 (FB2) were detd. by HPLC on an Ultracarb 7 ODS column with pH 3 MeOH-0.1M NaH2PO4 (4:1) as mobile phase by utilizing precolumn derivatization with o-phthaldialdehyde, isocratic elution, and fluorescence detection (excitation 335 nm, emission 440 nm) prior to anal.; sample exts. were purified on strong anion exchange cartridges. The method was used for the anal. of naturally contaminated corn and mixed horse feed samples, as well as fungal culture material, for the presence of the mycotoxins. Detection limits are approx. 50 ng/g for FB1 and 100 ng/g for FB2. The method was highly reproducible and recoveries of the toxins from the purifn. steps were 99.5% and 85.9%, resp.

AN 113:229815 CA
TI Quantitative determination of **fumonisins** B1 and B2 by high-performance liquid chromatography with fluorescence detection
AU Shephard, G. S.; Sydenham, E. W.; Thiel, P. G.; Gelderblom, W. C. A.
CS Res. Inst. Nutr. Dis., South African Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Liq. Chromatogr. (**1990**), 13(10), 2077-87
CODEN: JLCHD8; ISSN: 0148-3919
DT Journal
LA English

L10 ANSWER 23 OF 37 CA COPYRIGHT 2002 ACS
AB Moldy and healthy corn samples were collected from 2 opposing human esophageal cancer prevalence areas of the Transkei, southern Africa, during 1985, and screened mycol. The moldy corn samples were analyzed for the presence of several Fusarium mycotoxins, including deoxynivalenol (DON), diacetoxyscirpenol (DAS), moniliformin (MON), nivalenol (NIV), T-2 toxin, zearalenone (ZEA), **fumonisins** B1 (FB1) and B2 (FB2), and tricarballylic acid [(TCA), a compd. present in the structures of the **fumonisins**]. The healthy corn samples were screened for the presence of FB1 and FB2. High concns. of DON, MON, NIV, ZEA, FB1, and FB2 were recorded in the moldy corn samples. Statistical correlations between the incidence of Fusarium species and mycotoxin levels, present in the corn samples, agreed with the toxin-producing abilities of the individual Fusarium species. Addnl. data clearly indicated that significantly higher

levels of both FB1 and FB2 were present in the healthy corn samples from the high esophageal cancer rate area than in corresponding samples from the low-rate area.

AN 113:151009 CA

TI Natural occurrence of some Fusarium mycotoxins in corn from low and high esophageal cancer prevalence areas of the Transkei, Southern Africa

AU Sydenham, Eric W.; Thiel, Pieter G.; Marasas, Walter F. O.; Shephard, Gordon S.; Van Schalkwyk, Dirk J.; Koch, Klaus R.

CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.

SO J. Agric. Food Chem. (**1990**), 38(10), 1900-3
CODEN: JAFCAU; ISSN: 0021-8561

DT Journal

LA English

L10 ANSWER 24 OF 37 CA COPYRIGHT 2002 ACS

AB The kinetics of the prodn. of **fumonisin B1** (FB1) by F. moniliforme MRC 826 in corn cultures was investigated as a function of fungal growth at various incubation temps. The growth rate of F. moniliforme, as measured by ergosterol concn., was higher at 25.degree. than at 20.degree., reaching a stationary phase after 4 to 6 wk in both cases. FB1 prodn. commenced after 2 wk during the active growth phase, continued to increase during the stationary phase, and decreased after 13 wk. The overall maximal yield of FB1 (17.9 g/kg, dry wt.) was obtained in corn cultures incubated at 20.degree. for 13 wk, but it was significantly higher than the max. yield (16.5 g/kg, dry wt.) obtained at 25.degree. after 11 wk. However, a significantly higher mean yield was detected at 25.degree. (9.5 g/kg, dry wt.) than at 20.degree. (8.7 g/kg, dry wt.). Prodn. reached a plateau after 7 wk of incubation at 25.degree. or 9 wk of incubation at 20.degree.. The maximal prodn. of FB1 at 30.degree. was very low (0.6 g/kg, dry wt.). FB1 was also found to be heat stable, as there was no redn. in the FB1 concn. after boiling culture material of F. moniliforme MRC 826.

AN 113:55648 CA

TI Effects of temperature and incubation period on production of **fumonisin B1** by Fusarium moniliforme

AU Alberts, J. F.; Gelderblom, W. C. A.; Thiel, P. G.; Marasas, W. F. O.; Van Schalkwyk, D. J.; Behrend, Y.

CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.

SO Appl. Environ. Microbiol. (**1990**), 56(6), 1729-33
CODEN: AEMIDF; ISSN: 0099-2240

DT Journal

LA English

L10 ANSWER 25 OF 37 CA COPYRIGHT 2002 ACS

AB **Fumonisin B1** and B2, members of a new class of mycotoxins, were measured in culture material of Fusarium moniliforme MRC826 and in two corn samples assocd. with field cases of equine leukoencephalomalacia. The compds. were detected by thin-layer chromatog. with confirmation by liq. secondary ion-mass spectrometry and by gas chromatog./mass spectrometry. Ref. stds. were isolated from cultures of F. moniliforme on corn. The level of **fumonisin B1** was about 600 mg/kg in the culture material and 150 and 20 mg/kg in the two naturally contaminated samples.

AN 115:2884 CA

TI A method of detection of **fumonisins** in corn samples associated with field cases of equine leukoencephalomalacia
AU Plattner, Ronald D.; Norred, William P.; Bacon, Charles W.; Voss, Kenneth A.; Peterson, Robert; Shackelford, Darcy D.; Weisleder, David
CS North. Reg. Res. Cent., Agric. Res. Serv., Peoria, IL, 61604, USA
SO Mycologia (**1990**), 82(6), 698-702
CODEN: MYCOAE; ISSN: 0027-5514
DT Journal
LA English

L10 ANSWER 26 OF 37 MEDLINE
AN 91249017 MEDLINE
DN 91249017 PubMed ID: 2095286
TI A mycological evaluation and in vivo toxicity evaluation of feed from 41 farms with equine leukoencephalomalacia.
AU Wilson T M; Nelson P E; Marasas W F; Thiel P G; Shephard G S; Sydenham E W; Nelson H A; Ross P F
CS US Department of Agriculture, National Veterinary Services Laboratories, Ames, IA 50010.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1990 Oct)** 2 (4) 352-4.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910728
Last Updated on STN: 19910728
Entered Medline: 19910709

L10 ANSWER 27 OF 37 CA COPYRIGHT 2002 ACS
AB Fusarium moniliforme, a common fungal contaminant of corn, was recently shown to produce a group of mycotoxins, the **fumonisins**, in culture. Moldy home-grown corn collected from an area of the Transkei, southern Africa, was analyzed for the presence of the **fumonisin** mycotoxins. **Fumonisin B1** was detected in the sample ext., as independently prepd. derivs., by 2 HPLC procedures. A capillary gas chromatog.-mass spectrometric procedure was used to confirm the identity of the tricarballylic acid moiety, present in the esterified hydrolyzates of the **fumonisins**. This is the 1st conclusive report of the natural occurrence of **fumonisin B1** in corn.
AN 112:53904 CA
TI Evidence for the natural occurrence of **fumonisin B1**, a mycotoxin produced by Fusarium moniliforme, in corn
AU Sydenham, Eric W.; Gelderblom, Wentzel C. A.; Thiel, Pieter G.; Marasas, Walter F. O.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO J. Agric. Food Chem. (**1990**), 38(1), 285-90
CODEN: JAFCAU; ISSN: 0021-8561
DT Journal
LA English

L10 ANSWER 28 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Leukoencephalomalacia (LEM) was induced by the oral administration of **fumonisin B1** (FB1) to 2 horses: a filly received 59,5 mg/kg of a 50% preparation of FB1, administered in 21 doses of 1,25-4 mg/kg over 33 days; a colt, 44,3 mg/kg of 95% pure FB1 in 20 doses of 1-4

mg/kg in 29 days. Both animals developed nervous signs such as apathy, changes in temperament, inco-ordination, walking into objects, and one showed paralysis of the lips and tongue. Characteristic lesions of LEM were present in the brains. These trials proved conclusively that FB1 can induce LEM in horses.

AN 1991:325320 BIOSIS
DN BA92:35835
TI LEUKOENCEPHALOMALACIA IN TWO HORSES INDUCED BY ORAL DOSING OF **FUMONISIN** B-1.
AU KELLERMAN T S; MARASAS W F O; THIEL P G; GELDERBLOM W C A; CAWOOD M; COETZER J A W
CS VETERINARY RES. INST., ONDERSTEPOORT 0110, SOUTH AFRICA.
SO ONDERSTEPOORT J VET RES, (1990) 57 (4), 269-276.
CODEN: OJVRAZ. ISSN: 0030-2465.
FS BA; OLD
LA English

L10 ANSWER 29 OF 37 MEDLINE

AB Fusarium moniliforme (FM) is associated with equine leukoencephalomalacia (ELEM) and hepatotoxicities in horses and rats. The neurochemical effects of ELEM-associated corn naturally infected with FM and FM strain MRC 826 were studied in rats. Increases in brain 5-hydroxyindoleacetic acid (5-HIAA, major metabolite of serotonin, 5-HT) and 5-HIAA/5-HT ratios were observed in rats fed the ELEM-FM corn. These rats had reduced body weights (17%, P less than 0.01) and increased brain weight/body weight ratios (14%, P less than 0.01) as compared with controls that were fed commercial corn. Rats fed a rodent chow supplemented (16%, w/w) with corn cultures of FM (MRC 826) had brain 5-HT and 5-HIAA increased (11% and 60%, P less than 0.01, respectively). At 20% FM (MRC 826)-chow diet, the 5-HIAA levels were increased (18%, P less than 0.01). In both the 16% and 20% diets, brain 5-HIAA/5-HT ratios were increased (45%, P less than 0.01 and 10%, P less than 0.05), body weights reduced (30% and 18%, P less than 0.01) and brain weight/body weight ratios increased (40% and 16%, P less than 0.01), respectively. The incidences of microscopic liver lesions (particularly bile duct proliferations, hepatocellular hyperplasia, and focal necrosis) were consistent with rats fed the FM contaminated and FM-fortified diets. These results suggest a possible FM (ELEM-associated)-induced dysfunction in either 5-HT metabolism or 5-HIAA elimination in rat brains.

AN 90287897 MEDLINE
DN 90287897 PubMed ID: 1972578
TI Effects of Fusarium moniliforme and corn associated with equine leukoencephalomalacia on rat neurotransmitters and metabolites.
AU Porter J K; Voss K A; Bacon C W; Norred W P
CS Richard B. Russell Agricultural Research Center, U.S. Department of Agriculture, Agriculture Research Service, Athens, Georgia 30613.
SO PROCEEDINGS OF THE SOCIETY FOR EXPERIMENTAL BIOLOGY AND MEDICINE, **(1990 Jul)** 194 (3) 265-9.
Journal code: PXZ; 7505892. ISSN: 0037-9727.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199007
ED Entered STN: 19900824

Last Updated on STN: 19950206
Entered Medline: 19900720

L10 ANSWER 30 OF 37 MEDLINE
AB Pulmonary edema and hydrothorax were observed in mature swine that died approximately 5 days after consuming corn screenings. These postmortem observations were reproduced in younger swine (16-24 kg) that died within 1 week when fed the corn screenings under experimental conditions. Additionally, pulmonary edema and hydrothorax occurred in a pig (7.1 kg) that died after receiving 4 daily intravenous injections of **fumonisin B1**. A fungus was isolated from the corn screenings that is identical to Fusarium moniliforme MRC-826 in colony morphology and under microscopic examination.
AN 91242753 MEDLINE
DN 91242753 PubMed ID: 2094448
TI Pulmonary edema and hydrothorax in swine produced by **fumonisin B1**, a toxic metabolite of Fusarium moniliforme.
AU Harrison L R; Colvin B M; Greene J T; Newman L E; Cole J R Jr
CS Veterinary Diagnostic and Investigational Laboratory, University of Georgia, Tifton 31794.
SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1990 Jul)** 2 (3) 217-21.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910719
Last Updated on STN: 19910719
Entered Medline: 19910702

L10 ANSWER 31 OF 37 MEDLINE
AB During the fall of 1989, an episode of equine leukoencephalomalacia involved 18 of 66 purebred Arabian horses at a breeding/training stable in Arizona. Of the 18 horses affected, the condition was fatal in 14. These horses, as well as 48 unaffected horses, had been fed a diet containing a substantial amount of white corn screenings. Gross pathologic findings included liquefactive necrosis in parts of the cerebral white matter and hemorrhagic foci of various sizes in the brain stem. Histopathologic findings included rarefied white matter with pyknotic nuclei and eosinophilic cytoplasm. Thin-layer chromatography, high-performance liquid chromatography, and gas chromatography/mass spectroscopy were utilized to identify and quantitate **fumonisin B1** in 3 samples of corn from the farm. Concentrations of **fumonisin B1** range from 37 to 122 ppm. **Fumonisin** B2 was also detected. Using information on diet, animal weights, and feeding practices, estimates of total **fumonisin B1** dosage were determined. This is the first definitive report on equine leukoencephalomalacia and associated **fumonisin B1** concentrations.
AN 91242752 MEDLINE
DN 91242752 PubMed ID: 2094447
TI **Fumonisin B1** levels associated with an epizootic of equine leukoencephalomalacia.
AU Wilson T M; Ross P F; Rice L G; Osweiler G D; Nelson H A; Owens D L; Plattner R D; Reggiardo C; Noon T H; Pickrell J W
CS US Department of Agriculture, National Veterinary Services Laboratories, Ames 50010.

SO JOURNAL OF VETERINARY DIAGNOSTIC INVESTIGATION, **(1990 Jul)** 2 (3) 213-6.
Journal code: A2D; 9011490. ISSN: 1040-6387.
CY United States
DT Journal; Article; (JOURNAL ARTICLE)
LA English
FS Priority Journals
EM 199107
ED Entered STN: 19910719
Last Updated on STN: 19910719
Entered Medline: 19910702

L10 ANSWER 32 OF 37 CA COPYRIGHT 2002 ACS
AB A method is described to isolate **fumonisin B1** (FB1) from corn cultured for 18 days at 25.degree. with Fusarium moniliforme. Cultured corn was extd. with aq. methanol and purified with XAD-2 column chromatog. and high performance liq. chromatog. (HPLC). About 450 mg of FB1 were obtained from 800 g cultured corn. Its identity was established by fast-atom bombardment (FAB) mass spectrometry, and IR spectrum and nuclear magnetic spectrum. Its purity was estd. to be 95% by gas chromatog./mass spectrometry (GC/MS).
AN 115:110124 CA
TI **Fumonisin B1**: isolation from corn culture, and purification by high performance liquid chromatography
AU Vesonder, R.; Peterson, R.; Plattner, R.; Weisleder, D.
CS North. Reg. Res. Cent., Agric. Res. Serv., Peoria, IL, 61604, USA
SO Mycotoxin Res. (**1990**), 6(2), 85-8
CODEN: MYREET; ISSN: 0178-7888
DT Journal
LA English

L10 ANSWER 33 OF 37 CA COPYRIGHT 2002 ACS
AB F. moniliforme has been assocd. with several diseases, including equine leukoencephalomalacia, human esophageal cancer, and hepatotoxicity/hepatocarcinogenicity in lab. animals. The potential health risks to animals and humans posed by F. moniliforme-contaminated grains cannot be assessed until the toxins are identified and toxicol. evaluated. As part of a systematic approach to identifying the hepatotoxins produced by F. moniliforme, diets contg. aq. and chloroform/methanol (1:1) exts. of F. moniliforme strain MRC 826 culture material (CM) and/or the extd. CM residues were fed to male Sprague-Dawley rats for four weeks. Serum alanine aminotransferase, aspartate aminotransferase, and alk. phosphatase activities were increased after two and four weeks, and microscopic liver lesions were found in those animals fed aq. CM ext. and the CM residue after chloroform/methanol extn. **Fumonisins** B1 and B2 were extd. from the CM by water, but not chloroform/methanol, and were present in the toxic diets at concns. of 93-139 and 82-147 ppm, resp. Nontoxic diets contained .ltoreq.22 ppm **fumonisin B1** and .ltoreq.65 ppm **fumonisin** B2.
AN 115:24074 CA
TI Comparative studies of hepatotoxicity and **fumonisin B1** and B2 content of water and chloroform/methanol extracts of Fusarium monififorme strain MRC 826 culture material
AU Voss, Kenneth A.; Plattner, Ronald D.; Bacon, Charles W.; Norred, William P.
CS Toxicol. Mycotoxin Res. Unit, Agric. Res. Serv., Athens, GA, 30613, USA
SO Mycopathologia (**1990**), 112(2), 81-92
CODEN: MYCPAH; ISSN: 0301-486X

DT Journal
LA English

L10 ANSWER 34 OF 37 CA COPYRIGHT 2002 ACS
AB A bioassay was developed to det. the potential toxicity of corn naturally contaminated with Fusarium moniliforme. Two groups of five male Sprague-Dawley rats were each fed one of two F. moniliforme-contaminated corn samples, designated CS-1 and CS-2, that were assocd. with sep. field cases of equine leukoencephalomalacia. A control group, also consisting of 5 male rats, was fed uncontaminated seed corn. All animals survived to the end of the study, and there were no apparent differences in appearance or behavior among groups. Wt. loss and irregular food consumption occurred in all groups and probably resulted from nutritional deficiencies inherent in the corn diets. Hepatocellular degeneration, necrosis and hyperplasia as well as biliary hyperplasia were found in the test groups only and were attributed to F. moniliforme. Serum transaminase and alk. phosphatase activities in animals fed CS-1 and CS-2 for 4 wk were significantly increased compared with the controls, while serum bilirubin concn. was increased only in the CS-1 group. Tubular nephrosis was also present in the renal cortex of all animals fed CS-1 and CS-2. These effects may have been related to **fumonisins** B1 and B2, recently discovered metabolites of F. moniliforme, that were found in both CS-1 and CS-2. Short-term studies of this type may be useful in screening naturally-contaminated grains and other materials for hepatotoxic metabolites produced by F. moniliforme.
AN 111:22330 CA
TI Hepatotoxicity and renal toxicity in rats of corn samples associated with field cases of equine leukoencephalomalacia
AU Voss, K. A.; Norred, W. P.; Plattner, R. D.; Bacon, C. W.
CS Richard B. Russell Agric. Res. Cent., Agric. Res. Serv., Athens, GA, 30613, USA
SO Food Chem. Toxicol. (**1989**), 27(2), 89-96
CODEN: FCTOD7; ISSN: 0278-6915
DT Journal
LA English

L10 ANSWER 35 OF 37 CA COPYRIGHT 2002 ACS
AB Culture material of F. moniliforme isolate exhibits cancer-promoting activity in a short-term cancer initiation-promotion bioassay with diethylnitrosamine-initiated rats and induces .gamma.-glutamyltranspeptidase-pos. (GGT+) foci as an endpoint after 4 wk of promotion. This bioassay was used as a monitoring system to isolate cancer-promoting compds. from cultures of F. moniliforme MRC 826. Culture material was successively extd. with Et acetate and MeOH-H2O (3:1). Most of the cancer-promoting activity was recovered in the MeOH-H2O ext. and remained in the aq. phase following partitioning of this ext. between MeOH-H2O (1:3) and CHCl3. The MeOH-H2O fraction was chromatographed on an Amberlite XAD-2 column, and the active fraction was eluted with MeOH. This fraction was chromatographed on a silica gel column with CHCl3-MeOH-MeCO2H (6:3:1) as eluent and further purified on a C18 reverse-phase column. Two pure compds. were isolated, and these have been chem. characterized and given the trivial names **fumonisin B1** and B2. At least 2 g of the major compd. **fumonisin**

**B1** was purified from 1 kg of culture material. **Fumonisin B1** in the diet (0.1%) significantly induced the formation of GGT+ foci in the livers of initiated as well as noninitiated rats. The cancer-promoting effect of **fumonisin B1** in rats was assocd. with a toxic effect, as evidenced by a significant redn. in wt. gain during the 4-wk promoting treatment. The principal pathol. change in rats treated with **fumonisin B1** was an insidious and progressive toxic hepatitis similar to that induced by toxic culture material of F. moniliforme MRC 826.

AN 109:124164 CA
TI **Fumonisins**-novel mycotoxins with cancer-promoting activity produced by Fusarium moniliforme
AU Gelderblom, W. C. A.; Jaskiewicz, K.; Marasas, W. F. O.; Thiel, P. G.; Horak, R. M.; Vleggaar, R.; Kriek, N. P. J.
CS Res. Inst. Nutr. Dis., South Afr. Med. Res. Counc., Tygerberg, 7505, S. Afr.
SO Appl. Environ. Microbiol. (**1988**), 54(7), 1806-11
CODEN: AEMIDF; ISSN: 0099-2240
DT Journal
LA English

L10 ANSWER 36 OF 37 CA COPYRIGHT 2002 ACS
AB The structures of the **fumonisins**, a family of structurally related mycotoxins isolated from cultures of F. moniliforme, were elucidated by mass spectrometry and 1H and 13C NMR spectroscopy as the diester of propane-1,2,3-tricarboxylic acid and either 2-acetylamino- or 2-amino-12,16-dimethyl-3,5,10,14,15-pentahydroxyicosane as well as in each case the C-10 deoxy analog; in all cases both the C-14 and C-15 hydroxy groups are involved in ester formation with the terminal carboxy group of propane-1,2,3-tricarboxylic acid.

AN 109:207957 CA
TI Structure elucidation of the **fumonisins**, mycotoxins from Fusarium moniliforme
AU Bezuidenhout, S. Catherine; Gelderblom, Wentzel C. A.; Gorst-Allman, Charles P.; Horak, R. Marthinus; Marasas, Walter F. O.; Spiteller, Gerhard; Vleggaar, Robert
CS Natl. Chem. Res. Lab., CSIR, Pretoria, 0001, S. Afr.
SO J. Chem. Soc., Chem. Commun. (**1988**), (11), 743-5
CODEN: JCCCAT; ISSN: 0022-4936
DT Journal
LA English

L10 ANSWER 37 OF 37 BIOSIS COPYRIGHT 2002 BIOLOGICAL ABSTRACTS INC.
AB Each of two horses was dosed by stomach tube with culture material on maize of Fusarium moniliforme MRC 826. One horse developed severe hepatosis and mild oedema of the brain after 6 doses of 2.5 g of culture material/kg body mass/day in 7 days. The second horse, in a similar experiment but at a dosage rate of 1.25 g/kg/day, developed mild hepatosis and moderate oedema of the brain. In both animals the brain oedema was particularly noticeable in the medula oblonagta. The mycotoxin **fumonisin B1** was extracted and purified from the culture material of F. moniliforme MRC, 826 which contained approximately 1 g/kg of this compound. A horse was injected intravenously 7 times from Day 0-Day 9 with 0.125 mg of **fumonisin B1**/kg body mass/day. Clinical signs of neurotoxicosis, which appeared on Day 8, included nervousness followed by apathy, a wide-based stance, trembling, ataxia, reluctance to move, paresis of the lower lip and tongue, and an

inability to eat or drink. Euthanasia was performed on the horse on Day 10
while the animal was in a tetanic convulsion. The principal lesions were severe oedema of the brain and early, bilaterally symmetrical, focal necrosis in the medulla oblongata. This report provides experimental evidence that **fumonisin B1**, produced by F. moniliforme, causes equine leukoencephalomalacia.

AN 1989:274863 BIOSIS
DN BA88:10945
TI LEUKOENCEPHALOMALACIA IN A HORSE INDUCED BY **FUMONISIN** B-1 ISOLATED FROM FUSARIUM-MONILIFORME.
AU MARASAS W F O; KELLERMAN T S; GELDERBLOM W C A; COETZER J A W; THIEL P G; VAN DER LUGT J J
CS S. AFR. MED. RES. COUNCIL, P.O. BOX 70, TYGERBERG 7505, S. AFR.
SO ONDERSTEPOORT J VET RES, (1988) 55 (4), 197-204.
CODEN: OJVRAZ. ISSN: 0030-2465.
FS BA; OLD
LA English

=> d his

(FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002)

FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002
L1 3475 S FUMONISIN?
L2 428 S SPHINGOLIPID (P) L1
L3 99 S L1 AND 1960-1991/PY
L4 55 DUP REM L3 (44 DUPLICATES REMOVED)
L5 37 S FUMONISIN B1 AND L4
L6 37 S (FUMONISIN B1) AND L4
L7 12467349 S ADMIN? OR TOPICAL? OR ORAL? OR PATIENT? OR CONSUM? OR INJECT?
L8 18 S L7 (P) L4
L9 18 DUP REM L8 (0 DUPLICATES REMOVED)
L10 37 DUP REM L6 (0 DUPLICATES REMOVED)

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     (FILE 'HOME' ENTERED AT 15:20:51 ON 07 MAY 2002)

     FILE 'CA, BIOSIS, MEDLINE' ENTERED AT 15:21:17 ON 07 MAY 2002
L1          3475 S FUMONISIN?
L2           428 S SPHINGOLIPID (P) L1
L3            99 S L1 AND 1960-1991/PY
L4            55 DUP REM L3 (44 DUPLICATES REMOVED)
L5            37 S FUMONISIN B1 AND L4
L6            37 S (FUMONISIN B1) AND L4
L7      12467349 S ADMIN? OR TOPICAL? OR ORAL? OR PATIENT? OR CONSUM? OR
INJECT?
L8            18 S L7 (P) L4
L9            18 DUP REM L8 (0 DUPLICATES REMOVED)
L10           37 DUP REM L6 (0 DUPLICATES REMOVED)

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L11: Entry 22 of 41 File: USPT Nov 23, 1999

DOCUMENT-IDENTIFIER: US 5990390 A
TITLE: Methods and compositions for the production of stably transformed, fertile monocot plants and cells thereof

Brief Summary Paragraph Right (117):
Production of mycotoxins, including aflatoxin and fumonisin, by fungi associated with monocotyledonous plants such as maize is a significant factor in rendering the grain not useful. These fungal organisms do not cause disease symptoms and/or interfere with the growth of the plant, but they produce chemicals (mycotoxins) that are toxic to animals. It is contemplated that inhibition of the growth of these fungi would be reduce the synthesis of these toxic substances and therefore reduce grain losses due to mycotoxin contamination. It is also proposed that it may be possible to introduce novel genes into monocotyledonous plants such as maize that would inhibit synthesis of the mycotoxin without interfering with fungal growth. Further, it is contemplated that expression of a novel gene which encodes an enzyme capable of rendering the mycotoxin nontoxic would be useful in order to achieve reduced mycotoxin contamination of grain. The result of any of the above mechanisms would be a reduced presence of mycotoxins on grain.

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L11: Entry 19 of 41 File: USPT Feb 15, 2000

DOCUMENT-IDENTIFIER: US 6025545 A
TITLE: Methods and compositions for the production of stably transformed, fertile monocot plants and cells thereof

Brief Summary Paragraph Right (100):
Production of mycotoxins, including aflatoxin and fumonisin, by fungi associated with monocotyledonous plants such as maize is a significant factor in rendering the grain not useful. These fungal organisms do not cause disease symptoms and/or interfere with the growth of the plant, but they produce chemicals (mycotoxins) that are toxic to animals. It is contemplated that inhibition of the growth of these fungi would be reduce the synthesis of these toxic substances and therefore reduce grain losses due to mycotoxin contamination. It is also proposed that it may be possible to introduce novel genes into monocotyledonous plants such as maize that would inhibit synthesis of the mycotoxin without interfering with fungal growth. Further, it is contemplated that expression of a novel gene which encodes an enzyme capable of rendering the mycotoxin nontoxic would be useful in order to achieve reduced mycotoxin contamination of grain. The result of any of the above mechanisms would be a reduced presence of mycotoxins on grain.